Managing a Corporate Performance Measurement System: An Empirical Study of Balanced Scorecard in a Saudi Oil Company

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ABSTRACT

Today's oil and gas industry faces a number of challenges, carrying with them both great risks and opportunities. Thus, it is vital to identify effective methods of improving corporate performance. A key challenge in management accounting is improving an organisation's bottom line by measuring performance and fine-tuning it to align its work with its strategy. The Balanced Scorecard (BSC) is a strategic management system which, unlike traditional management systems, links a company's long-term strategy with its short-term actions. Consequently, much academic literature has been produced on the BSC, presenting it as a major development in performance measurement frameworks which combines financial and non-financial measurements to provide reliable feedback for management control and performance evaluation. Empirical studies have found the BSC concept to have been adopted by many large western organisations, but methods of implementation are still developing with experience and there has been a dearth of research on BSC issues in Saudi Arabia.

This study examines the implementation and use of BSC in a state-owned enterprise, Saudi Aramco, the world's largest oil producer. Its main objectives are to assess the BSC as a tool for improving and measuring company performance, to investigate how well Saudi Aramco's managers understand the concepts of the BSC and to determine the extent to which Saudi Aramco has managed its adoption from initiation to final implementation. From the literature, 23 critical success factors (CSFs) were identified. For triangulation purposes, the case study employed three phases of data collection: semi-structured interviews, an online questionnaire and scrutiny of corporate documents, providing information on how the organisation fared on the 23 CSFs.

The main finding is that the top management and the middle managers surveyed in this study all clearly understood the concept of the BSC, but its implementation had limited success, for three main reasons. First, despite conscious efforts by top management to involve the middle managers at the very early stages and a very well managed planning phase of BSC development, middle managers still had the perception that the introduction process was governed by a top-down approach, which would have had a negative impact on the contributions made by middle managers. This raises issues of the application of policy by Saudi Aramco. Second, the integration of the BSC with existing systems such as the SAP ERP system and the excessive data input data demands of the BSC (both crucial element of implementation) left many managers dissatisfied, to the extent that some departments such as Finance hardly used the BSC. Third, the managers felt that the BSC's key performance indicators (KPIs) were not updated regularly enough to meet the challenges of a dynamic business environment. Research implications that are discussed include the need for Saud Aramco to consider issues such as evaluating the CSFs, including integration with existing systems, the need to examine the reasons behind the 'top-down' perceptions and the importance of the continuous evaluation of performance measures. Finally, a model that Saudi Aramco can use in adapting and improving the current BSC is presented.

DEDICATION

To the memory of my Father

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First and foremost, thanks and praise to Allah, the most Gracious and most Merciful.

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1. INTRODUCTION

1.1 Introduction

During the past two decades the Kingdom of Saudi Arabia has undergone rapid economic development in all areas, including the business sector. Correspondingly, the authorities and businesses in the kingdom have become aware of the significance of modern accounting techniques. These techniques, whether taken as a whole or individually, are considered to be of fundamental importance when making economic decisions and when assessing the efficiency of an economic unit. The Balanced Scorecard (BSC) is a recent introduction within management accounting systems, and consequently implementation methodologies are still in a nascent stage and developing with experience. Accordingly, there has not yet been a common comprehensive or holistic approach to BSC evaluation in the oil and gas industry in Saudi Arabia.

The main objectives of this research are to study the concept of BSC as a tool for improving and measuring company performance, using the state oil company, Saudi Aramco, as the organisation under study, to investigate the extent to which Saudi Aramco's managers understand the concepts of the BSC and to determine how successfully they have managed the adoption of the BSC from initiation to final implementation.

This chapter is devoted to describing the research problem, starting by describing the background to the study, then declaring its aim and objectives, specifying the research methodology and outlining the structure of the thesis.

1.2 Background

It is clear from a review of the management accounting literature that results controls constitute an important and fundamental element in the management accounting process, focusing on the collection and reporting of information about an organisation's action. Management accounting performance measurement systems, which fall within the results control category, not only play a highly significant and critical role in the financial success of the organisation, but also provide a source of highly useful and relevant information about internal activities. However, despite its importance to organisations, there has been a dearth of relevant work on the investigation of this topic in the management accounting literature, especially in the context of developing countries (Drury, 2004). Johnson and Kaplan (1987) have also argued that from the 1950s to the 1980s management accounting information has been too late, too aggregated and too distorted to be of any use or relevance for managers' planning and control decisions. According to Scapens (1991) part of the blame for this lack of relevance lies with business schools and academic accountants. Responding to the work of Johnson and Kaplan (1987), academics, accountants and consultants endeavoured to develop advanced management accounting systems and techniques to provide managers with more relevant information, enabling them to cope in a dynamic, fast-changing environment (Burns and Vaivio, 2001). Consequently, the management accounting literature in the 1990s advocated the use of a combination of financial and non-financial performance measures to provide managers with the most relevant information on the all-round status of their organisations. Following this, a range of different performance measurement frameworks have been developed by academics and businesses; a detailed review of these frameworks is presented in Chapter Four. A review of the literature on these performance measurement frameworks identifies the BSC to be the predominant framework in management accounting. An examination of both the professional and the academic literature suggests that there is broad and widespread interest in the BSC as a result of which companies all over the world have adopted this management accounting tool.

1.3 Statement of Problem

Today, corporate leaders in the oil and gas industry are confronted with a number of challenges, virtually all of which carry with them enormous risks as well as potential opportunities for growth and improved performance. Furthermore, the oil and gas industry is one of the major sources of revenue for many countries of the Middle East and elsewhere (Roth, 2006). In this environment, identifying effective methods of improving corporate performance represents a vital component of any organization's ability to achieve its goals, and the oil and gas industry is no exception. The stakes are high, but there are some techniques and processes that have been found to be effective for measuring performance and fine-tuning it to achieve superior results and an improved bottom line.

A variety of different approaches has been used for undertaking BSC research. Some of these can be identified as being within the economic-based management research category. Some researchers have made use of social theory to provide an explanation for certain aspects of the BSC. Cooper and Ezzamel (2004), for instance, conducted a social analysis of the core assumptions underlying the BSC, while cross-sectional descriptive studies have also been used to determine the characteristics of the BSC approach (e.g. Spechbacker et al., 2003).

However, as the BSC is a relatively recent development within management systems, methodologies for implementation are still evolving with experience. As a consequence, a common, comprehensive or holistic approach to BSC implementation has not yet been developed.

Kaplan and Norton (19992, 1995, 2001a, 2004a, 2005) have discussed in detail the potential for the application of the BSC to public and private sector organisations, providing a range of examples of designs and their implementation within various industries (Papalexandris et al., 2005). However, little work has been done on the various supporting elements, such as organisational culture, strategy and management commitment, which may have a critical role to play in the successful implementation of BSC.

Motivated by the gap in BSC research identified above and by the complex and integrated nature of BSC, the investments involved—especially in terms of time—and the relatively high failure rate of implementation, this research also investigates the critical success factors (CSFs) of BSC implementation. The organisation selected for the case study is the Saudi oil company Saudi Aramco, which has implemented BSC but on which no comparable study has yet been done. Although the case study is of just one company, the organisation selected is one of the largest corporations in the world and the nature of its business makes it very important not just domestically but for the global economy (Velasco, 2006). It is a state-owned oil company having access to 25% of the world's known oil reserves, estimated at 259.9 billion barrels. It also owns 248.5 trillion cubic feet of gas reserves. It supplies more than 10 percent of global oil demand and produces 12.5% of total world production. Its performance has a very great impact on the whole Saudi economy, contributing 54% of the country's GDP (Saudi Arabian Monetary Agency, 2007). Hence, although this is one corporation, the fact that most of the downstream industries are dependent on oil makes Saudi Aramco the most important company in value creation for the whole Saudi economy. Therefore studying BSC implementation in Saudi Aramco is a very important research objective.

1.4 Aim and Objectives of the Study

There appears to have been no empirical research investigating the modern management of business performance measurement in the oil industry in Saudi Arabia to date. This study will attempt to investigate the BSC as the performance management tool currently used in Saudi Aramco. It is hoped that such a study will make a highly significant contribution to the economic and financial wellbeing of the oil and chemical industry in Saudi Arabia, as it operates in an increasingly competitive global industry. Its importance to the organisation and the Saudi economy in general can be gauged from the fact that a large number of participants in the research enthusiastically asked to be shown the final report of its findings and recommendations. This may also be because of the general dearth of this kind of research work in the Saudi public and private sectors.

This research has the following objectives:

1. To investigate whether all middle and top-level managers in the Financial Accounting and Corporate Planning departments of Saudi Aramco have the same understanding of BSC. Is it a strategy map for Saudi Aramco?
2. To investigate how BSC has been implemented in Saudi Aramco. Was the process sequential or was it implemented all at one time and why was this choice made?
3. To investigate how difficult the implementation process was.
    a. Was the change process an important element in BSC implementation?
    b. Was it a problem simply of change, or was it specific to the BSC?
4. To investigate whether all managers in Saudi Aramco have the same understanding of 'change'. Was BSC forced from the top down or did it evolve from the bottom up?
5. To investigate whether BSC has any influence on Saudi Aramco's strategic decision-making or whether it is a mere description of strategy in the company.
6. To discover whether the understanding of BSC in Western countries translates to Saudi Arabia. How does the decentralisation focus of BSC fit in with the Saudi economic culture of centralisation?

This research is not intended to be a comparative study of BSC implementation in different organisations, but a comprehensive analysis of BSC implementation in one state-owned enterprise (SOE), namely Saudi Aramco. A major part of this study aims to assess the use of BSC as a tool for improving and measuring company performance. It is not intended to generalise the findings to other oil companies or SOEs, as it is well known that cultural, legal and political differences exist between countries and that findings from one context cannot be extrapolated to another.

1.5 Research Methodology

The design of research in management accounting can take several forms: it can be either normative or positive and it can be based on either theory or practice. The

major methods used will be descriptive case-study and structured questionnaire surveys.

In order to perform research utilising this methodology, the researcher needs to have a general understanding of the organisational practices and values that influence management control systems, including business strategy, and of instruments such as the BSC which allow organizations to provide clarification of their vision and strategy and to translate them into action. This investigation aims to provide a better understanding of the meaning and the boundaries of these phenomena. This empirical study is based on extensive interviews with respondents at various levels in Saudi Aramco, such as the executive directors of corporate planning and finance, and a number of middle managers, supplemented by a survey of the middle managers using a structured questionnaire. Consequently, this case study employs a methodological triangulation approach, combining quantitative and qualitative methods, through the complementary use of primary data (interviews and structured questionnaire) and the examination of highly confidential (secondary data) pertaining to the strategy and business plan of the organisation.

In terms of validity, as noted earlier, it is not intended to generalise the findings of this research to other oil companies or SOEs. Hence, external validity is not a concern here; instead, the focus is on internal validity. In other words, could the research be repeated to produce the same results? The research was designed to meet this criterion.

1.6 Ethical Considerations

It should be noted that all confidential information concerning the identity of respondents and the strategy used in the daily business of Saudi Aramco, which are not intended to be disclosed in the public arena, are to be treated with the highest level of confidentiality. All such information collected was used only for the purpose of this research and will not be distributed to the public.

1.7 Structure of the Thesis

The thesis consists of nine further chapters as follows:

Chapter Two gives an overview of the Saudi economy, a brief history of its political systems, a review of major economic developments, the economic significance of the oil industry to the Saudi economy, directions of development planning and the non-oil industry in Saudi Arabia.

Chapter Three concerns the national oil company, Saudi Aramco; following a brief history of the domestic oil industry, it outlines oil policy, the political structure of oil policy decision making, Saudi Aramco's organisational structure, and performance measurement systems in Saudi Aramco.

Chapter Four contains the literature review; it examines the subject of management control and provides a broad overview of performance measurement systems in their historical context. It provides a better understanding of the main themes and arguments which support corporate non-financial performance measures. It also describes the performance measurement framework, strategic measures and modern management accounting tools. Finally, it discusses why academics and practitioners have become increasingly interested in the BSC approach.

Chapter Five focuses on the BSC itself, giving a detailed description of the emergence of this tool and its assumptions. It also reviews the relevant literature in order to provide a better understanding of the main themes for undertaking a critical evaluation of BSC. It ends with discussion of the CSFs that will be investigated in this study.

Chapter Six presents the research design and methodology chosen to address the aims and objectives of the study. It explains the reasons for selecting certain data collection methods and describes the design of the data collection instruments.

Chapter Seven presents and analyses the results of the qualitative aspects of the case study, while **Chapter Eight** presents and analyses the quantitative data from the questionnaires, using the Statistical Package for the Social Sciences (SPSS) version 15, and **Chapter Nine** discusses an overall analysis of the combined results and findings using a triangulation approach.

Finally, **Chapter Ten** offers a summary and conclusion of the study. In addition, its major findings and limitations are discussed and suggestions are made concerning possible further research.

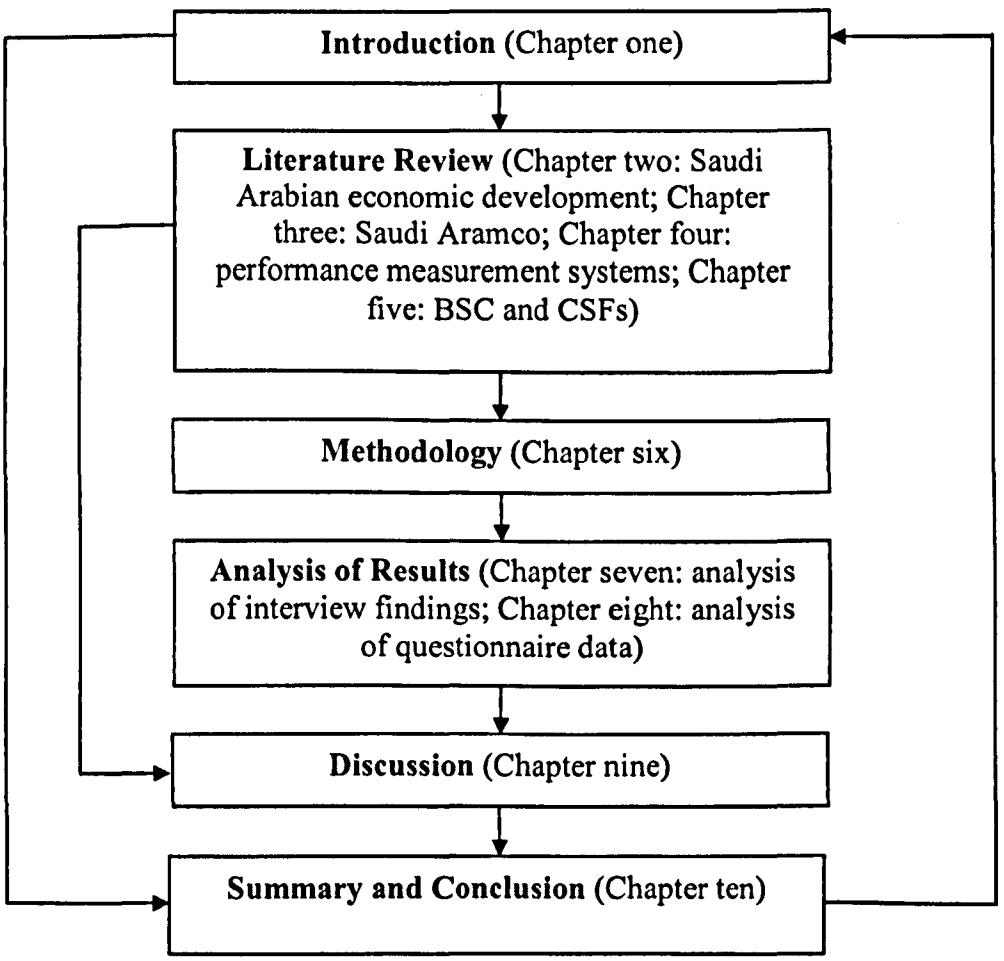


Figure 1.1 Flow chart of the preparation of the thesis

2. AN OVERVIEW OF SOME ASPECTS OF THE SAUDI ECONOMY

2.1 Introduction

The Kingdom of Saudi Arabia was founded in 1932 by Abd Al Aziz bin Abd Al Rahman Al Saud. The central institution of the Saudi Arabian government is the monarchy, whose authority is based on Islamic law (*sharia*). Therefore, Islamic law is the primary source of legitimacy. The sharia has the same status as a constitution and the power of the monarch is not absolute, as it is constrained by the sharia (McCurry, 1994). In an effort to encourage increased political participation, the Saudi government held nationwide elections between February and April 2005, for half of the members of 179 municipal councils (Ministry of Information, 2006). In December 2005, King Abdullah completed this initiative through the appointment of the rest of the members of the advisory municipal councils. Today, the Kingdom remains a leading producer of oil and natural gas and holds approximately 25 percent of the world's proven oil reserves (Ministry of Economy and Planning, 2006).

The Saudi government is committed to pursuing economic reforms and diversification and promoting foreign investment in the country in the context of Saudi Arabia's accession to the WTO in December 2005. A rapidly growing population, aquifer depletion and an economy largely dependent on petroleum output and prices are all ongoing government concerns.

The purpose of this chapter is to discuss the geography, demography and governance of Saudi Arabia and to review its business environment, the major economic developments affecting it, its strategic direction, and the implementation of its privatization programme and the implications of its accession to the WTO. The chapter also reviews the contribution of the oil industry to Saudi development plans,

the Kingdom's industrial sector, including the private sector, and finally the country's capital stock market.

2.2 Geography and Population

Saudi Arabia has a total area of 2.2 million square kilometres—about 10 times the size of the United Kingdom and a third the size of the continental United States (Saudi Ministry of Information 1997). The Kingdom covers roughly 80 percent of the Arabian Peninsula, with the remaining 20 percent comprising the smaller countries of Yemen, Oman, the United Arab Emirates, Qatar, Bahrain and Kuwait. The Kingdom is bordered by Kuwait to the Northeast, by Iraq and Jordan to the North, by the Arabian Gulf, Bahrain, Qatar and the United Arab Emirates to the East, by the Sultanate of Oman and the Yemen Republic to the South and by the Red Sea to the West (Figure 2.1). Saudi Arabia comprises four regions: in the Northwest is Hijaz, which borders the Red Sea and contains the Muslim holy cities of Makkah and Madinah and the country's major commercial centre, Jeddah; in the central plateau is the Najd region, where the administrative capital, Riyadh, is located; in the Southwest is the Asir region and on the Arabian Gulf is the Eastern province, formerly Al-Hasa, which contains three oil operations—Dammam, Rastanura and Abqaiq— and has the largest oil reserves in the world.

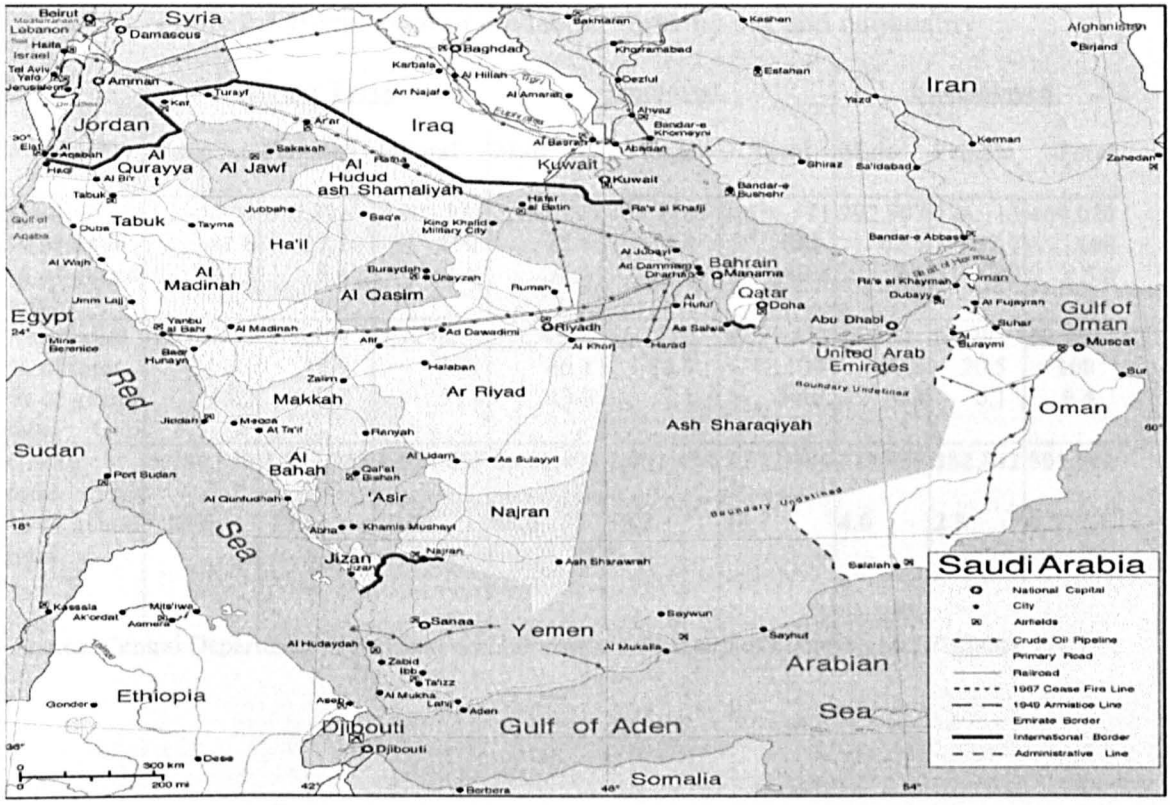

Saudi Arabia
National Capital
City
Airfields
Crude Oil Pipeline
Primary Road
Railroad
1967 Cease Fire Line
1949 Armistice Line
Emirate Border
International Border
Administrative Line
Red Sea
Gulf of Aden
Arabian Sea
Gulf of Oman
Jordan
Iraq
Kuwait
Iran
Bahrain
Qatar
United Arab Emirates
Oman
Yemen
Egypt
Sudan
Ethiopia
Djibouti
Somalia
Afghanistan
Syria
Lebanon
Israel
Tabuk
Ha'il
Al Madinah
Al Qasim
Makkah
Ar Riyad
Ash Sharaqiyah
Al Bahah
'Asir
Najran
Jizan
Al Jawf
Al Hudud ash Shamaliyah
Al Qurayya
Baghdad
Basrah
Kuwait
Riyadh
Doha
Manama
Abu Dhabi
Muscat
Sanaa
Aden
Djibouti
Somalia
Iran
Shiraz
Esfahan
Kerman
Bandar-e Abbas
Dubai
Oman
Muscat
Sur
Buraymi
Al Fujayrah
Ra's al Khaymah
Ra's al Khafji
Bandar-e Bushehr
Abadan
Khorramshahr
Ahvaz
Yazd
Zahedan
Birjand
Kashan
Qezlul
Karbala
An Najaf
Al Hillah
Al Amarah
Al Basrah
Kuwait
Hafar al Batin
Ar'ar
Sakakah
Rafha
Turayf
Arar
Tabuk
Tayma
Dumah
Al Jubayl
Ad Dammam
Dhahran
Al Hufuf
As Salwa
Harad
Al Kharj
Ad Dawadimi
Al Aflaj
Wadi ad Dawasir
Sharurah
Ash Sharawrah
Najran
Khamis Mushayt
Abha
Al Qunfudhah
Port Sudan
Jeddah
Mecca
Al Ta'if
Yanbu al Bahr
Al Madinah
Umm Lajj
Al Wajh
Dubai
Sharjah
Ajman
Al Ain
Liwa Oasis
Buraydah
Unayzah
Al Qassim
Hail
Tabuk
Gulf of Aqaba
Red Sea
Mina Bereniice
Berbera
Dese
Gonder
Mekele
Assab
Lahij
Zabid
Ibb
Ta'izz
Al Mukha
Al Hudaydah
Saywun
Sayhut
Al Mukalla
Salalah
Kassala
Aqiq
Aqiq
Aqiq

Table 2.1 Breakdown of the labour force by sex and nationality

	Labour Force			Employed			Unemployed		
Nationality	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Saudi	3,230,200	670,391	3,900,591	2,937,293	494,278	3,431,571	292,907	176,113	469,020
% of total	82.8	17.2	100	85.6	14.4	100	62.5	37.5	100
% of grand total	40.3	8.4	48.6	36.6	6.2	42.8	3.6	2.2	5.8
Non-Saudi	3,550,350	573,944	4,124,294	3,524,202	567,216	4,091,413	26,152	6,729	32,881
% of total	86.1	13.9	100	86.1	13.9	100	79.5	20.5	100
% of grand total	44.2	7.2	51.4	43.9	7.1	51.0	0.3	0.1	0.4
Grand total	6,780,550	1,244,335	8,024,885	6,461,495	1,061,494	7,522,984	319,059	182,842	501,901
% of grand total	84.5	15.5	100	80.5	13.2	93.7	4.0	2.3	6.3

Source: Central Department of Statistics and Information, Ministry of Economy and Planning, 2007

2.3 Government Systems

Saudi Arabia is an Arab and Muslim state, whose constitution is based on the Qur'an (the Book of Allah) and the Sunnah (Practices of the prophet Mohammed; peace be upon him). It is a monarchy, with the King occupying multiple positions as Head of State, Prime Minister and Supreme Commander of the Armed Forces, formulating and executing national policies. The King is directly assisted by the Deputy Prime Minister, who is also the Minister of Defence and Inspector General. Other ministers appointed to the Council of Ministers (COM) provide policy and legislative support to the King (Majlis Al-Shoura).

The current Head of State is King Abdullah Bin Abdul Aziz, whose official titles include President of the Council of Ministers and Custodian of the Two Holy Mosques. Among the ministers assisting King Abdullah in his duties is Crown price Sultan Bin Abdul Aziz, who is Deputy Premier, Minister of Defence and Inspector General. The ministers, who are eminent personalities with great intellect and vast experience, represent the cream of Saudi society. Similarly, the King receives advisory support from the Consultative Council, the majority of whose members have

received their higher education or earned postgraduate degrees from among the best universities in the world.

The Saudi judiciary system operates through the application of sharia law. The basic system of government emphasises this fact, as per the following articles concerning the authority and powers of the judiciary in Saudi Arabia:

- The Judiciary is an independent authority and subjects itself to no authority except that of the Islamic Sharia.
- The sources of edicts in the Kingdom of Saudi Arabia are the Holy Qur'an and the Prophet's Sunnah.
- With due consideration to the hierarchy of the Board of Grievances and its jurisdiction, the courts are competent to look into all disputes.
- The courts apply in the course of their functions the principles of Islamic Sharia in accordance with the Holy Qur'an, the esteemed Sunnah and regulations issued by the ruler which are not incongruous with it (Dar Al-Ufuq, 1995, pp.106-107).

It should be pointed out that the political development of Saudi Arabia differed from that of most developing countries, particularly in the formative stages, in that it has no history of exploitation and subjection by any Western colonial power. As Al-amri (1982) states:

> *"Most of the developing nations, in their formative stages, were heavily influenced by one or the other of the European nations. Accordingly they patterned their independent system of government after those nations.... Saudi Arabia, on the other hand, was never a colony. Its relations with other nations were always on a more remote, more equal basis. And when the political system of Saudi Arabia was being formed, it relied on the values of the nation, predominantly those of Islam, rather than on a foreign model."*

In addition to being the most influential Arab country and the leader of the Islamic world, the Kingdom has maintained a respected and influential position in the international community. Saudi Arabia is a founder member of the Congress of the

Islamic World, the Arab League, and the United Nations, the Gulf Cooperation Council (GCC), the International Monetary Fund and many other international organisations.

2.3.1 The Council of Ministers

In the1930s, the central administration was established for the first time in Saudi Arabia as a result of two independent developments. The first was the discovery in 1938 of oil, which gave the Kingdom a source of income through which all its needs could be met. This required a centralised government to manage its affairs. The second development was the increasing complexity of government[1].

The COM is the most important agency within the government apparatus. It takes its power directly from the King and is responsible for all matters concerning the Kingdom. It grants powers to ministers to oversee foreign and domestic matters under the approval of its President[2]. The law of the Council of Ministers states that:

> *"No ministry may conclude any contract or agreement with any party except after obtaining the approval of the Council of Ministers thereto."*[3]

The COM issues the regulations, instructions and rules required to execute and supervise the execution of Royal Orders and Decrees, while the laws and decisions issued by the Council direct the implementation of the budget through the Office of the Controller General.

> *"The Council of Ministers shall formulate and supervise the implementation of internal, foreign, financial, economic, educational and defence policies as well as all policies pertaining to the general affairs of the state."*[4]

[1] Three ministries were established in 1950: Foreign Affairs, Finance and Defence. Other ministries, including Interior, Communications, Education, Agriculture, Commerce and Health, were established in 1954. The Directorate General of Petroleum and Minerals with other agencies and departments followed in 1958.
[2] A Royal Decree was issued to set up the Council of Ministers on the 10 of October, 1953.
[3] According to Article 18 of the Council rules issued in 1958 and its amendments.
[4] Article 19 of the Basic Law of the COM.

The King, as President of the Council of Ministers, carries veto power over its decisions. In addition, the first and second Deputies report to the President of the Council, while ministers report to the Council and its President. Decisions are to be voted on by the majority of members present, but are not binding until sanctioned by His Majesty. The bylaws state that the COM is to meet monthly, but the King can call for an extraordinary meeting. However, in recent years, it has met weekly and conducts a large part of its work through a General Committee which sends its recommendations on most matters to the Council for approval.

2.3.2 Consultative Council

In August 1993, the Consultative Council (CC), which is an advisory body on internal affairs, was created by a Decree of King Fahd, who appointed 60 members. The number of members was increased to 90 in 1997 in order to meet the development needs of the Kingdom. In 2001, the number of members was again increased, to 120. In 2005, it was decided that the Council should be increased in number to 150 and given powers to assist the government in laws and regulations. The CC discusses what is sent to it by the King and makes recommendations. It has the ability to initiate laws if ten of its members suggest an idea to the King, which may be pursued further on this request (Consultative Council Report, 2006).

> *"Decisions of the CC shall be submitted to the president of the COM, who refers them to the COM to study them. If the COM agrees with CC decisions they are issued after the King approves them. If the two councils disagree, the King decides on what he sees fit."*[5]

According to Article 15 of the Basic Law of Government (BLG), the Consultative Council gives its opinion on the general policies of the State that are presented before it by the President of the Council of Ministers (i.e. the King). In particular, the Council may:

1- Discuss the general plan of economic and social development and voice its opinion on it.

[5] Article 17 of Basic Law of Consultative Council.

2- Study laws, regulations, concessions and international treaties and agreements and offer suggestion on them.
3- Interpret laws.
4- Discuss annual reports submitted by ministers and other government agencies, and offer suggestions on them.

2.3.3 Government Policy on Business

Saudi Arabia can be categorised as a developing country with a free enterprise economy, but with considerable intervention by a government which is dedicated to economic development. Until the emergence of the oil industry, Saudi society was basically engaged in primitive agriculture, fishing and the *Hajj* (pilgrimage) trade. What little business existed was largely family owned. The first time foreign companies started investing in Saudi Arabia was as a result of the discovery of oil. These companies made significant contributions to creating a successful Saudi economy, but their business aims and objectives constrained the time and money which they were able to dedicate to the agenda of local business development, the major exception being Saudi Aramco, which gave much more help to the local businesses than any other Western company (Wright, 1996).

The extraordinary programme which has taken Saudi Arabia from an underdeveloped country thirty years ago to a society with a modern infrastructure and the potential to develop a diversified economy has been successful. Therefore, the Kingdom's investment regime has been transformed since the establishment in 2000 of the main foreign investment promotion agency, the Saudi Arabia General Investment Authority (SAGIA). The Seventh Plan period (2000-2004) witnessed a number of initiatives aimed at creating conducive business environment and attracting private investment, particularly foreign direct investment. The most important of these initiatives are:

1. SAGIA was created to be responsible for national and foreign investment affairs. It issues investment licences, facilitates procedures for foreign investors via one-stop-shops (comprehensive service centres) in all major cities, proposes policies and measures for the improvement of the investment climate, promotes investment opportunities and provides pertinent information.

2. The new Foreign Investment Law issued in April 2000 ensures equal treatment for national and foreign investors by allowing foreign companies to obtain full ownership of projects and pertinent assets, as well as offering equal investment incentives including soft loans provided by the Saudi Industrial Development Fund (SIDF). Moreover, foreign companies are allowed to carry over their losses for an unlimited number of years for purposes of tax, which has been also reduced to 20 percent of the profits.

3. The Capital Market Law, issued in 2003. In view of the significance of the capital market in promoting economic growth, and with the stock market and other mechanisms being considered as instruments for channelling national savings, stimulating national investment and attracting foreign investment, the Capital Market Law aims at restructuring and regulating the Saudi capital market by developing the institutional structure of the market and completing the related infrastructure in line with international best practice to ensure transparency and safety of dealings. The most salient features of this law are:

   - The establishment of three new institutions, enjoying administrative and financial autonomy, to replace the interim measures which were adopted by the market. These are the Securities Exchange Commission (which is considered a supervisory and regulatory body); the Securities and Exchange Market; and the Securities Depository Centre, as custodian of securities and related settlements.

   - The separation of the supervisory and regulatory role from the executive role of the capital market. The former is fulfilled by the Securities and Exchange Commission and the latter by the Securities Market and the Securities Depository Centre under private sector management.

4. Establishment of the Human Resources Development Fund in 2000. The aim is to support the process of training and educating the national workforce.

5. The launch by SIDF, in collaboration with the commercial banks, of a programme of support for small and medium enterprises (SMEs), under which SIDF guarantees up to 75 percent of the loans provided by the commercial banks to SMEs (Ministry of Economy and Planning, 2006).

2.3.3.1 The Investment Incentives System

Ever since the first five-year development plan which started in 1970, investment incentives provided by the government have served as a satisfactorily effective means of investment promotion in the Kingdom. These incentives were comprehensive, even during the early stages of development. There was a need then to accelerate and support the development of industrial activities and services. However, the system of incentives has evolved in line with the developmental challenges and priorities facing the Kingdom. In light of the prospects and challenges of the coming stage, represented by improving the competitiveness of the national economy, enhancing the growth of activities which contribute directly to economic diversification, development of the knowledge economy and the other strategic directions of the Eighth Plan (2005-2009), it is necessary to review the system of investment incentives accordingly. A selective system should now be developed to stimulate investments in spheres which support the above-mentioned directions. In this respect, incentives will be provided to activities and services which contribute to the improvement of 'total factor productivity', such as those which support technology transfer and indigenization, R&D activities, high value-added industries and exports of high technology-oriented products, as well as other priority sectors, while taking into consideration the implications of the Kingdom's accession to the WTO (Saudi American Bank, 2006).

2.3.3.2 Tax in Saudi Arabia for Foreign Investors

The Saudi tax regime is one of the main attractions for foreign investors, with a new form introduced in 2004 by Royal Decree, cutting the corporate tax rate by more than half. The Kingdom is one of the few countries to allow firms to carry forward losses indefinitely, which allows companies to be free of a tax burden until they start to report profits. The more significant changes are as follows:

- The rate of corporate tax is 20%, applied only to income from Saudi sources, exceptions being the natural gas sector, which is subject to a 30% tax rate, and the oil sector, which is taxed at 85%.
- There is no taxation on the wages and salaries of non-Saudis, but there is a religious tax (*zakat*) based on 2.5% of equity less fixed assets on Saudis and all investors in the Gulf States.

- There is no value-added or sales tax.
- Withholding taxes ranging between 5% and 20%, depending on the type of services rendered (Income Tax Regulations, 2004).

2.4 Review of Major Economic Developments

This section will provide a detailed description of the economic environment in Saudi Arabia. A brief look at the current world economic situation is followed by a more detailed examination of the Saudi economic environment, focussing particularly on the importance and contribution of oil to the whole economy of the Kingdom. Other socioeconomic indicators such as employment, interest rates and inflation rates are also discussed.

2.4.1 World Economic Growth

Emerging markets showed good economic performance, especially India and China in 2006. The Chinese economy, for instance, grew at a rate of 10.7 percent, the highest rate of growth in the world during that year, largely as a result of a rapid increase in investments and an increase in exports. In the Middle East, oil exporting countries like Saudi Arabia were able to record robust economic growth rates by taking advantage of high oil revenues.

Most other countries of the world also experienced significant improvement in their growth rates during 2006. However, as shown in Table 2.2, it is predicted that in 2007 the world growth rate will decline to its level in 2005 (4.9 percent). In advanced economies, the growth rate was expected to come down from 3.1 percent in 2006 to 2.5 percent in 2007.

The table also shows that the growth rate in the US increased from 3.2 percent in 2005 to 3.3 percent in 2006 but decreased to 2.2 percent in 2007, affecting the US interest rates, which in turn had a significant influence on Saudi domestic liquidity, because the Saudi riyal is pegged to the dollar.

Table 2.2 World real GDP growth rates (percent)

	2000	2001	2002	2003	2004	2005	2006	Projection 2007
The world	4.8	2.5	3.1	4.0	5.3	4.9	5.4	4.9
Advanced economies	4.0	1.2	1.6	1.9	3.3	2.5	3.1	2.5
Major advanced economies	3.6	1.0	1.2	1.8	3.1	2.3	2.8	2.2
USA	3.7	0.8	1.6	2.5	3.9	3.2	3.3	2.2
Euro area	3.9	1.9	0.9	0.8	2.0	1.4	2.6	2.3
Japan	2.9	0.2	0.3	1.4	2.7	1.9	2.2	2.3
Germany	3.1	1.2	----	-0.2	1.2	0.9	2.7	1.8
France	4.0	1.8	1.1	1.1	2.0	1.2	2.0	2.0
Italy	3.6	1.8	0.3	----	1.1	0.1	1.9	1.8
UK	3.8	2.4	2.1	2.7	3.3	1.9	2.7	2.9
Canada	5.2	1.8	2.9	1.8	3.3	2.9	2.7	2.4
Other advanced economies	5.3	1.7	3.2	2.4	4.1	3.2	3.6	3.3
European union	3.9	2.1	1.4	1.5	2.6	1.9	3.2	2.8
New Asian industrial economies	7.9	1.2	5.4	3.2	5.8	4.7	5.3	4.6
Other emerging markets and developing countries	6.0	4.3	5.0	6.7	7.7	7.5	7.9	7.5
Africa	3.1	4.4	3.7	4.7	5.8	5.6	5.5	6.2
Asian developing countries	7.0	6.0	7.0	8.4	8.7	9.2	9.4	8.8
China	8.4	8.3	9.1	10.0	10.1	10.4	10.7	10.0
India	5.1	3.9	4.3	7.3	7.8	9.2	9.2	8.4
Middle East	5.4	3.0	3.9	6.5	5.5	5.4	5.7	5.6
Middle & Eastern European Countries	4.9	0.2	4.5	4.8	6.6	5.5	6.0	5.5
Western Hemisphere	3.9	0.5	0.3	2.4	6.0	4.6	5.5	4.9
Brazil	4.4	1.3	2.7	1.1	5.7	2.9	3.7	4.4
Commonwealth of Independent States	9.0	6.3	5.3	7.9	8.4	6.6	7.7	7.0
Russia	10.0	5.1	4.7	7.3	7.2	6.4	6.7	6.4

Source: IMF, World Economic Outlook, 2007.

2.4.2 Economic Environment in Saudi Arabia

According to the Energy Information Administration (2007), in the context of becoming successfully integrated into the global economy, Saudi Arabia, the largest economy in the Middle East, has emphasized the importance of regional unity among Gulf States, economically, politically and militarily. Reflecting positive conditions in the world oil market, Saudi Arabia enjoys continued optimism and improvement in the domestic investment environment in all sectors of the economy, due to high oil prices, increasing oil production and export earnings, paired with structural reforms, economic diversification and stable macroeconomic policymaking (Saudi American Bank, 2008). As shown in Table 2.3, the Saudi economy continued to record high growth in all sectors during fiscal year 2006, which remains heavily dependent on oil and petroleum-related industries, including petrochemicals and petroleum refining.

Table 2.3 Selected Economic Indicators

	2002	2003	2004	2005	2006
Estimated population (million)	21.5	22.0	22.7	23.1	23.7
GDP at constant price (billion riyals)	707.1	804.6	938.8	1,182.5	1,307.5
GDP at constant prices of 1999 (billion riyals)	637.2	686.0	722.2	766.0	798.9
Non-oil GDP deflator	99.0	102.1	105.9	110.3	110.2
Inflation rate (consumer prices)	0.2	0.6	0.4	0.7	2.2
Aggregate money supply M3 (billion riyals)	390.4	417.5	496.1	553.7	660.6
Average price of Arabian light oil (US$)*	24.32	27.69	34.53	50.15	61.05
Riyal's real effective exchange rate (2000=100)	99.0	90.5	84.4	82.3	81.8
Ratio of currency in circulation to total money supply	13.4	13.3	12.1	11.6	10.5
Ratio of total deposits to total money supply	86.6	86.7	87.9	88.4	89.5
Net foreign assets of domestic bank (billion riyals)	52.5	41.0	47.1	26.4	70.6
Interest rates on domestic currency deposits (3 months)	2.23	1.63	1.73	3.75	5.02
Bank capital adequacy ratio (Basel standard)	21.3	19.4	17.8	17.8	21.9
Actual government revenue (billion riyals)	213.0	293.0	392.3	564.3	673.7
Actual government expenditure (billion riyals)	233.5	257.0	285.2	346.5	393.3
Ratio of budget deficit /surplus to GDP	-2.9	4.5	11.4	18.8	22.2**
Exports of goods (billion riyals)	271.7	349.7	472.5	677.1	786.6
Import of goods CIF (billion riyals)	121.0	138.4	167.8	223.0	248.4
Ratio of current account surplus to GDP	6.3	13.1	20.7	28.5	27.4
Current account (billion riyals)	44.5	105.2	194.7	337.0	357.7
Share price index (1985=1000)	2,518.1	4,437.6	8,206.2	16,712.6	7,993.3

Source: OPEC, 2007
** See Figure 2-2, public finance, pertaining to 2006 surplus.

The major indictors show that the oil price had a positive impact on economic condition in 2006. According to OPEC sources, the average price of Arabian light oil rose by 42.2 percent to $50.15 a barrel compared to $61.05 a barrel in 2006, which increased the actual revenue of Saudi Arabia (Figure 2.2).

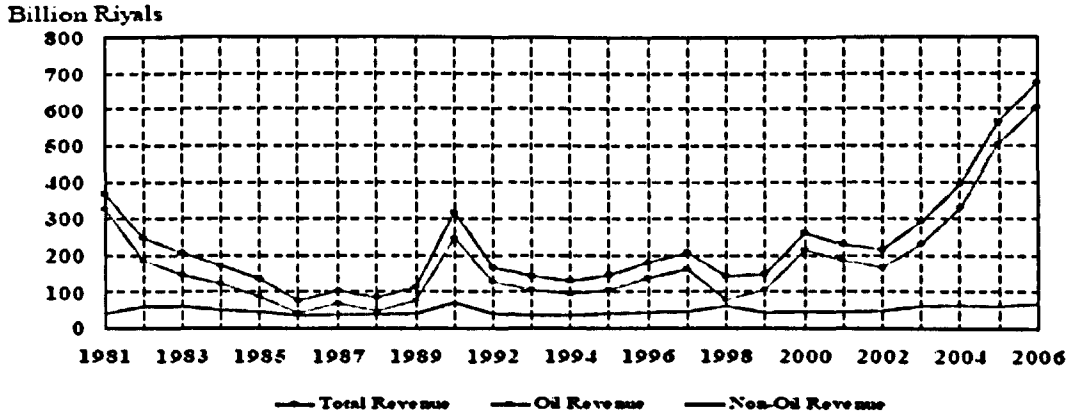


Figure 2.2 Trends in actual oil and non-oil revenue

Source: SAMA, 2007

The increase in oil prices had a positive impact on all Saudi economic sectors. As shown in Table 2.3, GDP (at current prices) rose by 10.6 percent to SR 1.3 trillion, while the real growth was 4.3 percent, amounting to SR 798.9 billion.

Therefore, the budget of Saudi Arabia was in substantial surplus in 2006, amounting to SR 289.7 billion or 22.2 percent of GDP. The balance of payments current account recorded a surplus for the eighth consecutive year, increasing by 6.0 percent over the preceding year. This growth in the state budget can be seen as resulting from the increased oil price in 2007.

According to the Saudi Arabia Monetary Agency (SAMA) (2007), actual oil revenue increased to SR 604,407 million in 2006 (see Table 2.4), when oil revenues stood at 89.7% of total revenues, compared to 89.4% in 2005, while non-oil revenue was about 10.3%, against 10.6% in 2005.

Table 2.4 Actual oil and non-oil revenues (million riyal)

Year	Oil Revenue		Non-oil Revenue		Total Revenue
	SR	%	SR	%	
2002	166,100	78.0	46,900	22.0	**213,000**
2003	231,000	78.8	62,000	21.2	**293,000**
2004	330,000	84.1	62,291	15.9	**392,291**
2005	504,540	89.4	59,795	10.6	**564,335**
2006	**604,470**	**89.7**	**69,212**	**10.3**	**673,682**

Source: Ministry of Finance Report, 2007

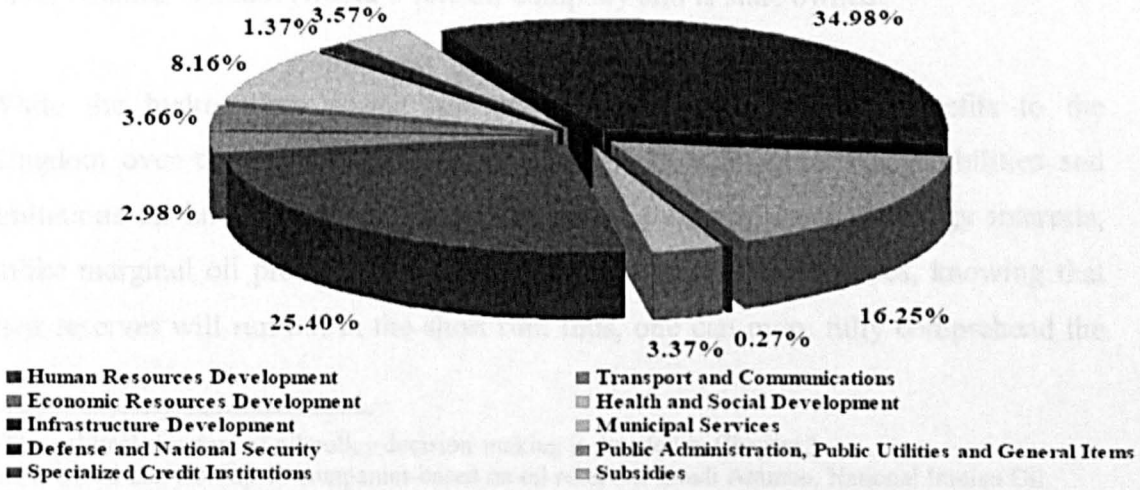


Figure 2.3 Budget allocation for fiscal year 2007

Source: Saudi Arabia Monetary Agency (SAMA), 2007

Table 2.5 Distribution of the state budget 2006 and 2007 (by major sectors)

	2006		2007	
	Million SR	% of total	Million SR	% of total
Human resources development	87,164	26.0	96,483	25.4
Transport and communication	9,804	2.9	11,329	3.0
Economic resources development	12,454	3.7	13,902	3.6
Health services and social development	26,798	8.0	31,902	3.6
Infrastructure development	4,555	1.4	5,188	1.3
Municipal services	11,588	3.5	13,576	3.6
Defence and national security	110,779	33.1	132,922	35.0
Public administration, utilities & general items	62,814	18.7	61,756	16.2
Government specialized credit institutions	575	0.2	1,026	0.3
Subsidies	8,469	2.5	12,808	3.4
Total	**335,000**	**100**	**380,000**	**100**

Source: Ministry of Finance

As can be seen from Table 2.5, the allocation of finance for each of the major sectors increased at varying rates in 2007 compared to 2006.

2.4.3 Economic Significance of the Oil Industry to the Saudi Economy[6]

Energy is a vitally necessary input to economic activity throughout the world and crude oil is today one of the most highly valued commodities in international trade. While nine of the top ten global companies in terms of oil reserves are state owned, i.e. national oil companies (NOCs) and all top ten global companies in terms of natural gas reserves are NOCs (Petroleum Intelligence Weekly, 2005)[7], these resources-rich NOCs are primarily resident in developing countries, including Saudi Arabia, whose petroleum sector is as important to the Kingdom itself as to the world. Saudi Aramco is Saudi Arabia's sole oil company and is state owned.

While the hydrocarbon sector has brought undoubted material benefits to the Kingdom over the past thirty years, it has also brought great responsibilities and limitations on how far Saudi Arabia can act in pursuing its own energy interests, unlike marginal oil producers that wish to optimize current revenues, knowing that their reserves will run out in the short run; thus, one can more fully comprehend the

[6] The political structure of oil policy decision-making is detailed in Chapter 3.

[7] PIW stated that the Top 10 companies based on oil reserves: Saudi Aramco, National Iranian Oil Company (NIOC), Iraqi National Oil Company (INOC), Kuwait Petroleum Corporation (KPC), Petroleos de Venezuela (PdVSA), Abu Dhabi National Oil company (Adnoc), Libya National Oil Company (Libya NOC), Nigerian Petroleum Company (NNPC), Petroleos Mexicanos (Pemex) and Lukoil. The top 3 companies based on natural gas reserves were Qatar Petroleum (QP), Saudi Aramco and Gazprom.

strategic importance of the Kingdom in meeting the world's energy needs. The government's recent emphasis on economic diversification encompasses energy-based manufacturing and the exploitation of gas and mineral resources, both for domestic consumption and for the establishment of new export markets. However, despite efforts at diversification away from oil, the hydrocarbon sector will continue to be at the heart of the Kingdom's economic wellbeing for some time.

Saudi Aramco has a monopoly on hydrocarbon exploration, development and production and in the refining, processing, marketing and distribution of oil and gas products in Saudi Arabia. Therefore, while the size of Aramco's asset base is not the only reason for its importance, the petroleum sector accounts for about 40 percent of Saudi GDP. Saudi Aramco is thus the cornerstone of the Saudi economy, as oil accounts for 80 to 85 percent of total export earnings and between 70 and 80 percent of government revenues (Aramco Report, 2006).

2.4.3.1 Contribution of Oil to Saudi GDP

The International Monetary Fund (IMF) reported that in 2006, oil export revenues accounted for around 90 percent of total Saudi export earnings, 70-80 percent of state revenues and 44 percent of the country's GDP. SAMA (2007) reports that the oil sector (at current prices) grew by 14.5 percent during 2006 and the contribution of the oil sector to GDP at current prices rose to 54.6%[8] during 2006, from 52.7% in the preceding year, as shown in Figure 2.4. Table 2.6 sets out Saudi Arabia's production as a percentage of world and OPEC output.

Oil provides a sizable contribution to GDP, government revenues, balance of payments and exports. Oil and gas in Saudi Arabia play a major role in establishing other industries and services related to them, mainly petrochemicals, electricity, water desalination, and energy-intensive heavy industries.

[8] The figure for the share of the oil sector in Saudi Arabia's GDP differs between sources. The IMF, SAMA and Saudi Aramco all give different figures.

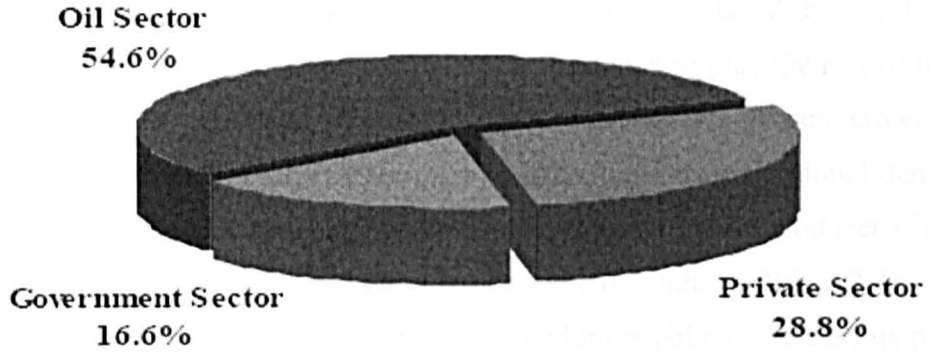


Figure 2.4 Contribution of economic sectors to GDP in 2006 (current prices)

Source: SAMA, 2007

Table 2.6 Saudi oil production as share of world and OPEC oil production (million barrels per day)

Year	World Production	OPEC Production	Saudi Production	Saudi share of world	Saudi share of OPEC
2000	76.8	30.8	**8.1**	**10.5%**	**26.3%**
2002	76.5	28.5	**7.1**	**9.7%**	**24.9%**
2004	83.0	32.9	**8.9**	**10.8%**	**28.3%**
2005	84.4	34.2	**9.3**	**11%**	**28.8%**
2006	**85.2**	**34.4**	**9.2**	**11.3%**	**28.9%**

Source: SAMA, 2006, Petroleum Intelligence Weekly, EIU

Table 2.7 Saudi Arabia – Hydrocarbon sector indicators (1972-2006)

Index	1972	1982	1992	2002	2005	2006
Oil production (million barrels)	2,201	2,366	3,049	2,588	3,413	3,361
Oil exports (million barrels)	1,992	2,058	2,408	1,928	2,631	2,565
World export market share	2.6%	4.7%	3.25%	2.57%	10%	11.3 %
Refined production (million barrels)	222	310	541	582	720	715
Refined export (million barrels)	208	195	473	362	505	466
Natural gas liquids (million barrels)	19.8	156.8	227.7	316.9	387.3	399
Nominal oil prices ($/barrel)	3.61	33.42	19.33	25.03	50.15	61.05
Real oil prices (at 1970 prices $)	3.28	12.19	4.79	4.93	10.09	11.48
GDP at current prices (SR billion)	38.3	520.9	501.3	699.6	1,172.4	1,307.5
Oil sector GDP, current prices (SR billion)	22.4	254.7	199.8	263.5	618.2	707.7

Source: SAMA, Annual Report, 2006

As has been mentioned previously, the kingdom produced approximately 12.5% of total world production in early 2005 and continued to play the role of the world's one remaining major swing producer. There has, however, been growing speculation about Saudi ability to meet the current short-term surge in global demand driven by China, to increase capacity and to remain a major swing producer if global demand continues to be high and grow steadily in the future (Table 2.7). The Saudi Oil Minister, Ali Al-Naimi, said that the Kingdom is able to increase its production by 1 million barrels per day (bpd), but he argued that the problem in the market is not lack of supply. "It depends on demand; all we need is customers... The perception in the market is that there is not enough supply, which is untrue. There's plenty."

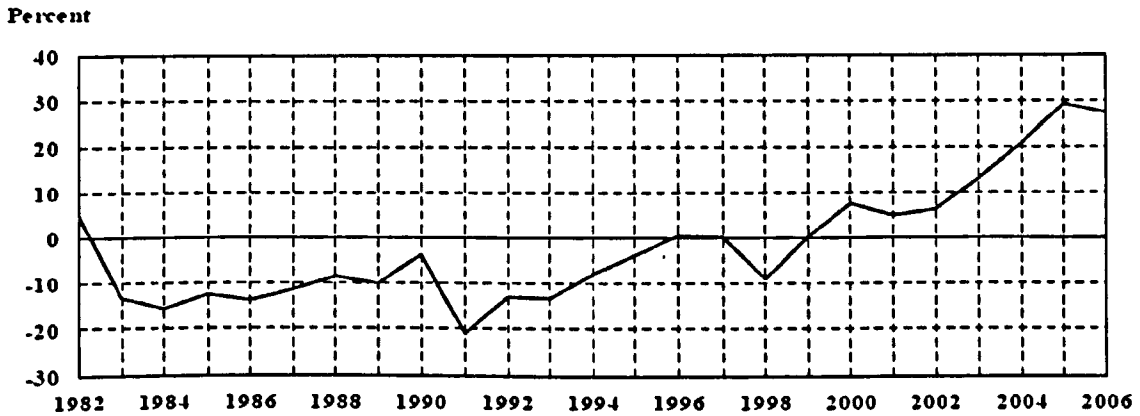


Figure 2.5 Ratio of current account deficit/surplus to GDP

Source: SAMA, 2007

2.4.4 Major Socioeconomic Objectives

Together with the enhancement of economic growth, employment, exports and the diversification of economic activities, the objectives of the Eighth Development Plan (2005-2009) include greater attention to the provision of protective care to poor social groups, provision of basic health and education services, and balanced distribution of the benefits of development among all regions of the Kingdom. In response to regional and international economic developments, the Plan adopted the objectives of strengthening economic integration among GCC states, enhancing Arab economic cooperation and accelerating the process of merging into the global economy.

Table 2.8 shows the main macroeconomic indicators and targets during the Eighth Development Plan as compared with the recorded achievements of the Seventh Development Plan. The macroeconomic projections were developed after taking into consideration the internal and external variables having a direct or indirect impact on the Eighth Development Plan.

Table 2.8 Macroeconomic Indicators of the Eighth Development Plan Compared with the Seventh Development Plan (%)

	Indicators	7th Development Plan (actual) 2000-2004	8th Development Plan (targeted) 2005-2009
A)	**Growth rates (annual average)**		
	* Real GDP (1)	3.44	4.6
	- Oil sector (2)	2.59	2.73
	- Non-oil sector	3.93	5.21
	• Private sector	4.28	5.68
	• Government sector	2.95	3.82
	* Gross fixed capital formation	4.4	10.72
	- Oil sector	16.92	20.12
	- Non-oil private sector	2.32	10.45
	- Government sector	10.33	3.18
	* Goods and services exports	3.72	3.03
	* Goods and services imports	7.32	4.57
B)	**As share of GDP at current prices (3)**		
	* Gross savings	39.8	40.8
	* State budget balance	9.4	1.4
	* Current account balance	21.8	18.02
C)	**Unemployment and inflation rates**		
	* Inflation rate (4)	- 0.60	0.60
	* Unemployment rate (5)	7.04	2.84
	- Males	5.63	2.42
	- Females	15.86	4.35

Source: Macroeconomic Projections, Ministry of Economy and Planning (2006).

Notes:
(1) At constant 1419/20 (1999) prices.
(2) Crude oil, natural gas and petroleum refining products.
(3) By the end of the Plan.
(4) Average annual growth of consumer prices.
(5) Exclusive to Saudi labour force as a percentage of labour force by the end of the Seventh and Eighth Plans.

2.4.4.1 Cost of Living

The general cost of cost of living index (1999=100) registered an increase of 2.2 percent in 2006, as Table 2-3 shows. The wholesale price index recorded an increase of 1.1 percent in the same year, while the non-oil GDP deflator declined by 0.1 percent (SAMA, 2007). The average inflation rate as measured by annual changes in the cost of living indices during the twelve months to March 2008 rose by 5.4% (Saudi American Bank, 2008). During the period April 2007-March 2008, the rate of inflation for goods and services surpassed the rates of the previous five years (2002-2006). The group of renovation, rent, fuel and water rose by 10.7 %, food and beverages by 8.0%, goods and other services by 6.8 %, medical care by 5.6 %, education and entertainment by 0.7 % and transport and telecommunications by 0.3 % (SAMA, 2007).

2.4.4.2 Balance of Payments

The balance of payments represents all economic transaction between Saudi Arabia and other countries, such as trade in merchandise, current and capital transfers, services and investment.

a) **Balance of trade**: The balance of trade surplus rose by 18.3 percent to SR 557.1 billion in 2006 against SR 470.8 billion in 2005, as shown in Table 2-9. This increase was due to an estimated rise in the value of oil exports by 17.1 percent from SR 604.1 billion in 2005 to SR 707.1 billion in 2006, as a result of the continued increase in oil prices.

b) **Services and transfer account:** The deficit in the services and transfers account increased by 49.6 percent in 2006 compared to 42.0 percent in the preceding year. At the same time, freight and insurance payments increased by 13.8 percent, due to a rise in the value of merchandise imports; payments for other government services rose by 75.8 percent; and payments for private sector services increased by 33.6 percent, due to increased travel expenses for education and tourism by Saudis abroad. Finally, payments by the oil sector increased by 96.0 percent and private transfers rose by 4.3 percent.

c) **Current Account:** The highest surplus was recorded in 2006 due to the increase in oil exports by 17.1 percent over the preceding year and a rise in non-oil exports by 8.6 percent.

Table 2.9 Balance Of Payments (million riyals)

	2003	2004	2005	2006	Annual Change%
(1) Merchandise Trade (fob)	221,735	317,470	470,753	557,058	18.3
• Oil export (exclude bunker oil)	307,591	414,059	604,063	707,138	17.1
• Other exports	41,148	57,186	71,163	77,375	8.6
Of which re-export	4,929	9,229	10,772	12,361	14.7
• Imports	-127,005	-153,939	-204,573	-227,455	11.2
(2) Services and Transfers	-116,556	-122,584	-133,290	-199,359	49.6
• Receipts	33,512	39,232	45,437	54,499	19.9
o Investment income	11,163	16,042	18,599	25,987	39.7
o Oil sector (bunker oil)	926	1,246	1,818	2,127	17.0
o Others	21,423	21,944	25,020	26,385	5.5
• Payments	150,068	161,816	178,727	253,858	42.0
o freight and insurance	11,430	13,854	18,412	20,950	13.8
o oil sector	16,040	14,250	18,597	36,457	96.0
o private sector services	18,331	27,611	35,995	48,073	33.6
o other government services*	48,830	55,269	53,279	93,683	75.8
o private transfer	55,437	50,832	52,444	54,695	4.3
(3) Current Account (1+2)	**105,180**	**194,722**	**337,463**	**357,699**	**6.0**
(4) Capital Movement and Reserves	-105,180	-194,722	-337,463	-357,699	
• oil sector and other capital transactions (net)	-2,199	-1,254	1,737	2,472	
• private sector capital transactions (net)	-38,154	70,616	-108,974	-18,383	
• commercial banks' foreign assets (net)	11,472	-6,031	20,660	-44,207	
• official capital and reserves	-76,298	-116,820	-250,887	-297,580	
Exchange rate (riyal per US dollar)	3.750	3.750	3.750	3.750	

Source: SAMA, 2007

2.4.4.3 Interest Rates

The body responsible for fixing the interest rate in the Kingdom is the Saudi Arabia Monetary Agency (SAMA), which, like any other central bank, employs interest rates as one of the tools to control the money supply in the economy. In comparison to a rise of 1.64 percentage points to 5.13 % in the Eurodollar rate in 2006, the average

* Including official transfers and contribution or capital subscriptions to international and regional development agencies.

interest rate for three month riyal deposits rose by 1.26 percentage points to 5.02 percent. The smaller increase in the riyal deposit rate than in the Eurodollar deposit rate resulted in the differential between the two average rates turning in favour of the dollar rate to the extent of 11 basis points. The trend from 2002 to 2006 is shown in Table 2.10.

Table 2.10 Interest Rates on Riyal and Euro $ Deposits

(Average rate on 3 month deposits)

Year	Saudi Riyal Deposit	Euro $ Deposit	Differential between Riyal and Euro $ rate
2002	2.23	1.71	0.52
2003	1.63	1.11	0.52
2004	1.73	1.53	0.20
2005	3.76	3.49	0.27
2006	5.02	2.13	-0.11

Source: SAMA, 2007

2.4.4.4 Exchange Rate

The riyal is pegged to the dollar and this remains a central principle of policy[9]. SAMA maintained the riyal exchange rate with the US dollar at 3.75 per dollar during 2006. This rate was made official on January 1, 2003. The declining trend in both the nominal and real effective exchange rates of the riyal continued during 2006. The index of nominal effective exchange rate (NEER)[10] (year 2000=100) declined steadily from 103.5 in 2002 to 90.3 in 2006. Likewise, the index of real effective exchange rate (REER)[11] fell from 99.0 in 2002 to 81.8 in 2006, as shown in Table 2.11.

Table 2.11 Indices of nominal and real effective exchange rates (2000=100)

	2002	2003	2004	2005	2006
NEER	103.5	95.9	91.2	90.6	90.3
REER	99.0	90.5	84.4	82.3	81.8

Source: IME's International Financial Statistics, 2007.

[9] All GCC member countries have the US dollar as official anchor for their currencies.
[10] NEER represents the trade weighted average of the Riyal's bilateral exchange rates with currencies of selected countries and the Euro area.
[11] REER represents adjusted for relative movements in price level indicators of Saudi Arabia, selected countries and the Euro area.

The riyal briefly rose to a 20-year high after the US Federal Reserve cut its interest rates in September 2007 and SAMA decided not to follow this cut, partly due to concerns about the inflationary effects of low interest rates and a lower value for the riyal, which returned to its peg against the US dollar in early December of 2007.

2.4.4.5 Unemployment

During the mid to late 1980s, in the wake of high oil prices, the oil-producing countries of the Middle East experienced rapid development, which contributed to economic growth, infrastructure development and the expansion of public goods provision, and finally created excess labour demand that could not be met by domestic resources. Foreign workers were therefore imported to fill the gaps (Ruppert, 1998).

The economies of GCC countries became highly centralized and dominated by the public sector, partially due to the presence of large publicly owned oil-related industries. In order to implement national development plans, the demand for qualified workers increased in both public and private sectors during the period of economic boom. At the same time, the Ministry of Economy and Planning reported an annual growth in unemployment of 9.8 percent, bringing the unemployment rate to 12.02 percent of the total labour force in the Kingdom of Saudi Arabia, with unemployment among Saudi males at 9.07 percent and among females at 26.27 percent, as Table 2.12 shows.

Table 2.12 Unemployment rate by sex and nationality

Year	Saudi			Non-Saudi			Total		
	Male		Female	Male		Female	Male		Female
	Total			Total			Total		
2000	6.54	17.64	8.15	1.13	0.96	1.11	3.78	9.34	4.57
2001	6.82	17.32	834	.98	0.60	0.93	3.87	9.14	4.46
2002	7.57	21.70	9.66	.82	0.62	0.79	4.21	11.51	5.27
2003	8.00	23.18	10.35	.80	0.79	0.79	4.36	12.51	5.56
2004	8.39	24.40	10.97	.77	0.93	0.80	4.49	13.36	5.82
2005	8.74	25.41	11.52	.75	1.06	0.80	4.60	14.07	6.05
2006	9.07	26.27	12.02	.74	1.17	0.80	4.71	14.69	6.25

Source: Ministry of Economy and planning, 2007

Apart from historical reasons, other factors can be identified as being influential in determining the supply of and demand for skilled workers in the Saudi labour market.

These include a wide array of determinants such as social, economic, political, educational, and managerial and externally influenced factors. In general, it is agreed that "education will be the main inspiration for altering and solving the major problems of human resources development in Saudi Arabia" (Al-Abdulwahed, 1981). The researcher believes that the increasing levels of unemployment among Saudi nationals can be attributed primarily to the poor quality of the Saudi educational system. There is also a tendency for young Saudis to be reluctant to take basic low-level positions and work their way up into positions of responsibility, as happens in Western countries. Rather, there is an expectation among them that they will be able to enter employment in high-level positions where they would supervise other employees who might be more experienced than them.

2.4.5 Foreign Investment in the Industrial Sector

The number of productive factories established in accordance with the Foreign Capital Investment Law amounted to 501 by the end of 2004, or 13.7 percent of the total number of productive factories.

The Economic Offset Programme represents an important channel for foreign direct investment. It concentrates on the transfer and indigenization of advanced technology, the training of national manpower and enhancing the linkages and integration of Saudi industry with world industry. In the context of this programme, eight agreements have been concluded with a number of countries and international companies, leading to the emergence of 17 Saudi-foreign joint companies operating in various fields, including maintenance of aircraft chassis and engines, production of electronic systems and products, electricity meters, sugar refining, chemicals, vehicle batteries and heavy machinery, as well as the development of communication and information systems software.

Until now, Saudi Arabia has not been able to attract a significant proportion of foreign investment, because of three main deterrent factors. The first is that the procedures that are needed to open a business in Saudi Arabia are highly bureaucratic. Second, recent terror attacks on foreign residents and foreign interests have discouraged international investors to some extent. Finally, the Saudi stock market is not

completely open for international investors and companies to buy and sell stock, and is also inefficient.

In conclusion, it is clear that issuing new regulations and establishing new agencies dealing with international investment will not be enough to attract foreign money. The Kingdom should work towards creating a healthy, prosperous and safe business environment.

2.5 Directions of Development Planning in Saudi Arabia

According to the Ministry of Economy and Planning (2006b), planning for development is a process that seeks to bring about phased and orderly socio-economic transformation from an existing state to a new more desirable state. In the context of setting targets, the planning process and the plan document give due consideration to domestic and external conditions and challenges, which are prioritized in terms of their nature and the extent of their impact on the development process. The efficiency of the planning process depends on its capacity for continuous renewal and adaptation, in order to keep pace with the changes and specific conditions of the individual phases of development. Thus, where planning is a means of meaningful socioeconomic development, the methodology of planning is the structure of that process. The Saudi government started five-year development planning in 1970 as a framework for the process of overall development to utilise the surpluses from oil sales arising from sharp price increases and its ability to increase oil production. These development plans, which have been formulated under the guidance of the Ministry of Economy and Planning with the support of other public agencies, have played a crucial role in the economic development of Saudi Arabia. To date, Saudi Arabia has accomplished seven five-year plans and the eighth development plan is being implemented during the current period (2005-2009)[12].

2.5.1 Integrated Strategic Planning

The strategic dimension has been an essential element of the development planning process employed in the Kingdom of Saudi Arabia. In fact, any development plan

[12] Most of the information and economic statistics in this section are based on the reports issued by the Ministry of Economy and planning, Saudi Arabia.

ought to be guided by a vision and a strategic perspective. Over the first five development plans, a set of 'General Objectives and Strategic Principles' served as the strategic dimension and provided the general framework for the objectives, policies and programmes of individual plans. Taking a step forward, over and above its general objectives and strategic principles, overseen by the Supreme Economic Council and approved by the Consultative Council and the Council of Ministers, the Seventh Development Plan adopted a long-term perspective vis-à-vis the national economy.

2.5.1.1 The Plan's Indicative Role

Starting with the Fifth Development Plan (1990-1994), the process of planning for development adopted a methodology of indicative planning for the private sector, as a complementary approach to the directive planning methodology adopted vis-à-vis the public sector. However, certain aspects of the Eighth Plan methodology have been further developed to enhance the Plan's indicative role. This development comes in response to the growing role of the private sector over the past years and the expected further expansion of that role over the coming years, prompted by the progress of privatization and the process of stimulation of private investments. Among the aspects that have been developed are:

- Increased emphasis on effective policies and improved transparency in their implementation.
- Ensuring that policies are accompanied by relevant implementation mechanisms, and setting of specific quantitative and time-bound targets for these mechanisms. This will allow for effective monitoring and evaluation of performance and efficiency of policies by responsible agencies.
- Listing of strategic projects into a separate chapter of the Plan document. The list provides data on project volumes and investment requirements and, as such, provides an indicator to the business sector of the size and nature of the Plan's investment priorities (Ministry of Economy and Planning, 2006b).

2.5.1.2 The Plan's Directive Role

The emphasis on policies and objectives, particularly those relating to activities and outputs, aims at strengthening the role of the implementing agencies, at all levels of government, in achieving the Plans' objectives through the selection of the best possible programmes, projects and other activities. The process of setting policy objectives coupled with relevant implementation mechanisms allows the agencies responsible for follow-up and monitoring to improve their performance in carrying out these tasks.

On the other hand, the emphasis on activities and their outputs, the establishment of indicators for measurement of the output and the setting of targets for these indicators will contribute to the improved efficiency of the agencies involved, because performance criteria are tied directly to activity objectives. For example, the objective of health activity is to improve health standards. While health sector inputs, including hospitals, physicians, health centres, are essential to improve health standards, they are not sufficient by themselves. Thus, activity output indicators provide a direct reflection of service standards and other activity objectives.

Table 2.13 makes it evident how closely government expenditure follows the fortunes of the Kingdom's oil revenue, with the Seventh plan (2000-2004) not reaching the peak of the 'boom years' of the Third plan (1980-1984). The researcher expects in this current development plan (2005-2009) that government expenditure will be the more than in any previous development plan, due to the huge oil price increase during 2008.

Table 2.13 Expenditure (billion riyal) by Saudi development plan (1970-2004)

Expenditure	First plan		Second Plan		Third Plan		Fourth Plan		Fifth Plan		Sixth Plan		Seventh Plan	
	SR	%	SR	%	SR	%	SR	%	SR	%	SR	%	SR	%
Economic resources development	9.5	27.7	97.3	28.0	192.2	30.0	71.2	20.4	34.0	10.0	48.2	11.5	41.7	8.5
Human resources development	7.0	20.6	51.0	14.7	115.0	18.5	115.1	33.0	164.6	48.0	216.6	51.5	276.9	56.7
Social and health development	3.5	10.3	27.6	8.0	61.2	9.9	61.9	17.7	68.0	20.1	87.5	20.8	95.8	19.6
Infrastructure development	14.1	41.4	171.3	49.3	256.8	40.8	100.7	28.9	74.2	21.9	68.1	16.2	73.8	15.2
Total	34.1	100	347.2	100	653.2	100	348.9	100	340.9	100	420.4	100	488.2	100

Source: Ministry of Economy and Planning, 2006

The growth targets of the Eighth Development Plan (2005-2009) were set up in a manner that reflects the strategic directions of the Kingdom's long-term economic development. These include improvement of the standard of living of Saudi citizens, development of human resources, diversification of the economic base and a rise in the productivity level of the Saudi economy. The most important objectives and policies of the Eighth Development Plan (Ministry of Economy and Planning, 2006) are in summary:

a) Increasing economic growth rates.

b) Increasing the private sector's contribution to economic growth and national income.

c) Diversifying the economic base.

d) Improving the balance of payments position in favour of the Kingdom.

e) Realizing a high degree of economic balance and price stability.

f) Realizing balanced development in all regions of the Kingdom.

2.5.2 The Privatization Implementation Programme

Privatization represents one of the strategic themes relating to the diversification and transformation of the Saudi economy. It also represents an important mechanism for increasing private sector participation in economic development. However, the oil and

gas sector is not part of this programme and remains under state control. Following the announcement by the Supreme Economic Council of the privatization strategy and identification of the public facilities to be privatized, the next important stage will be the preparation of an implementation programme for privatization. This will entail:

a) Preparation of a regulatory framework to support the privatization programme, particularly with respect to privatization of infrastructural facilities, including development of pricing controls for infrastructure services.

b) Gradual implementation of the privatization programme, which may entail restructuring some government organizations and transforming them into state-owned joint-stock companies as the first step towards full privatization.

c) Assessing the value of assets of the facilities to be privatized using techniques appropriate to the individual facilities. This will help ascertain the total value of the facility, which can be used as a guide in the process of privatization.

d) Ensuring transparency in decision making and implementation of measures related to privatization.

e) Making use of specialized advisors in preparing detailed studies and managing the privatization implementation programme (Ministry of Economy and Planning, 2006b).

It is noteworthy that the implementation programme will entail preparation of a specific schedule for accelerating the process of privatizing the various economic sectors.

Despite the significance of these initiatives, the more rapid development of Saudi exports will require further incentives to exporters in such a way that does not conflict with the commitments resulting from the Kingdom's accession to the WTO. These incentives include the following:

1) Increasing technical assistance for exporters to reduce the average cost of production, improve the quality of exported products and enhance their competitiveness.

2) Intensifying efforts to accelerate implementation of export-related measures and providing trade information about overseas importers of Saudi products.

3) Expanding and activating the Saudi Non-Oil Exports Credit Programme adopted by the Saudi Fund for Development to protect the Saudi exporters against default of payment.

4) Studying the possibility of transforming the Saudi Exports Development Centre into a public organization with the aim of promoting and diversifying the Saudi exports base by addressing the issues which face exporters and developing an appropriate strategy for export promotion (Ministry of Economy and Planning, 2006b).

Accordingly, the main emphasis of the Eighth Plan to enhance the role of the private sector encompasses the following steps.

2.5.2.1 Development of Financial Services

The financial services sector supports and augments the role of the private sector in the process of economic diversification. Many indicators point to the possibility of expanding the financial services in the Kingdom, given an improvement in the regulatory and operational environment. The development of the Saudi capital market is expected to constitute a core strategic theme in the development of the financial sector. This will entail developing new mechanisms and techniques for management of financial risks as well as new mechanisms for encouraging commercial banks to finance industrial production activities characterized by high risks. Furthermore, the development of insurance and reinsurance activities provides wide scope for enhancing the growing role of the private sector.

2.5.2.2 Development of Small and Medium-Scale Enterprises

The removal of the administrative, legal and technical constraints on SMEs will require continuity of the Human Resources Development Fund to provide technical support and training for professional manpower to meet the labour requirements of SMEs. It will also require the enhancement of the role of the main committees and the specialized centres established by the Saudi Council of Chambers of Commerce and Industry to sponsor SMEs, supporting and improving Saudi Industrial Development Fund mechanisms related to sponsorship of SMEs, as well as the role of the Saudi commercial banks in providing loans to such enterprises.

Moreover, SMEs are expected to face further challenges resulting from the Kingdom's accession to the WTO. Overcoming such challenges will spur the creation of a specialized agency to support the development of SMEs, protect them against any adverse developments and provide an appropriate business environment to enhance integration between SMEs and larger enterprises.

2.5.2.3 Implications of the Kingdom's Accession to the WTO

Saudi Arabia has concluded bilateral market access negotiations with all interested WTO Members. The WTO General Council formally concluded negotiations with Saudi Arabia on 11 November 2005 on the terms of the country's accession and Saudi Arabia became a full WTO Member on 11 December 2005.

There are many advantages of accession to the WTO, foremost among which is encouraging private sector investors to establish export-oriented industries, thereby enhancing the competitiveness of national products in local and global markets. It will also enable the Kingdom to make use of the trade laws and rules in protecting its foreign trade sector against unfair practices, such as dumping, imposing arbitrary duties, commercial counterfeiting of products and other practices which may adversely affect the stability and development of trade. The Kingdom will also be able to avoid the unilateral measures and differential trade policies practiced by some countries. The Kingdom's exports will no longer be subject to dumping or counter-tariffs unless within the provisions of WTO legislation. Similarly, the Kingdom will have the right, according to WTO laws, to resort to various measures to protect its trade interests.

The Kingdom's petrochemical exports represent the major beneficiary of the positive impacts stated above due to the reduction of custom duties in the WTO member countries as well as the removal of constraints which impede penetration into the markets of these countries. All these will contribute to the enhancement of the competitiveness of petrochemicals exports.

The most serious negative implication of the Kingdom's accession to WTO lies in the increased foreign competition in Saudi domestic markets, particularly in banking, telecommunications and consulting services, as well as merchandise products.

2.5.3 Development of Non-Oil Industry in Saudi Arabia

As mentioned earlier, the oil and gas sector is state controlled. A detailed description of this sector will follow in the next chapter, while this section considers the non-oil industrial sector, which has developed rapidly in Saudi Arabia. It is the main instrument for increasing the value-added of the non-oil part of the economy and has played a major role in diversifying the economic base as well as employment generation. As a result, industry has enjoyed particular attention since the beginning of the development process, reflected in the provision of an adequate supportive environment for industrial growth, diversification and development. This comprised the provision of infrastructure and basic services, exemplified by the establishment of fourteen industrial estates spread throughout the regions of the Kingdom in addition to the industrial cities of Jubail and Yanbu[13].

The Eighth Development Plan aims at developing and strengthening the competitive advantage of Saudi industries; increasing their linkages at the local, regional and international levels, in terms of inputs and outputs; supporting advanced high value-added industries; and providing more of the infrastructure and basic services needed to realize industrial development.

2.5.3.1 The Structure of Saudi Industry

The present structure of Saudi industry is characterized by the dominance of (a) basic industries which produce petrochemical, plastic and base metals products, and (b) industries focusing on medium-tech consumer goods, such as beverages, textiles, paper products and electrical devices. Notwithstanding the progress made during recent years in the field of technology-intensive capital goods, such as machinery,

[13] Royal Commission for Jubail and Yanbu (RCJY) was established as an autonomous organisation of the Saudi Government in the second Development Plan (1975-1980).

equipment, electrical and telecommunications apparatus, this sub-sector is still considered to be in its infancy.

Table 2.14 Number of Operating Factories and Total Investment Financing 1999 and 2004 (Seventh Development Plan)

Industrial Activity	1999 (Cumulative)		By end of 2004* (Cumulative)		Change during the 7th Plan Period	
	Number of factories	Total Investment (SR million)	Number of Factories	Total Investment (SR million)	Number of Factories	Total Investment (SR million)
Food and beverages	504	16151	577	20454	73	4303
Textile, ready made clothing & leather	141	3465	174	4311	33	846
Wood, wooden products & furniture	145	2226	190	2774	45	548
Paper, printing and publishing	195	5432	226	7360	31	1928
Chemicals and plastic products	630	150644	795	159156	165	8512
Building materials, chinaware, ceramics and glass	545	25281	585	29043	40	3762
Base metals metallic products, machinery and equipment	11	4074	16	4217	5	143
Other miscellaneous industries	893	22375	993	27174	100	4799
Transport and storage	78	1372	80	1312	2	-60
Total	**3163**	**231233**	**3652**	**255986**	**489**	**24753**

* To the end of 2004

Source: Ministry of Commerce and Industry

The Seventh Plan period witnessed the construction of 489 new factories with total assets of about SR 25 billion. As a result, the number of operating factories increased to 3,652 in 2004 with total assets of around SR 256 billion (Table 2.14). These factories concentrated primarily on producing metallic products, machinery and equipment, chemicals, plastics, building materials, ceramics, glass, and food and beverages, accounting for about 80% of the total number of factories.

2.5.3.2 Growth of the Industrial Sector

The value-added of the industrial sector grew at an average annual rate of 4.8 percent (1999 constant prices) during the Seventh Plan period (2000-2004). This rate was

higher than that of growth in GDP (3.4 percent) and in non-oil GDP (3.9 percent). As a result, the contribution of the industrial sector to GDP increased from 10.4 percent in 1999 to 11.1 percent in 2004. This is primarily attributed to the relatively good performance of the category of 'other manufacturing industries', which grew at an average annual rate of 5.9 percent, thereby raising their share of total value-added of the sector from 61.7 percent to 64.9 percent. This is a positive indicator in line with diversification of the economic base (see Table 2.8 above).

Meanwhile, the petrochemical industry grew at an average annual rate of 4.1 percent over the aforementioned period, which was lower than the Seventh Plan target of 8.3 percent. This is attributed to late completion of major projects under the Seventh Plan. As a result, the petrochemical industry's share of total value-added of the industrial sector decreased slightly from 9.6 percent in 1999 to about 9.2 percent in 2004. On the other hand, the oil refining industry grew at an average annual rate of 2.6 percent, well above the Seventh Plan target of 1.1 percent. This is attributed to high rates of capacity utilization, as refining capacity did not increase. The share of oil-refining in total value-added of the sector decreased from 28.7 percent in 1999 to 25.8 percent in 2004, as shown in Table 2.15.

Table 2.15 Industrial Sector Performance Indicators

(Seventh Development Plan, Constant 1999 Prices)*

Industrial Sector Indicators	Value (SR billion)		Actual Average Annual Growth Rate (%)	Planned Average Annual Growth Rate (%)
	1999	2004		
Total value-added for the sector	62.8	79.5	4.8	5.1
Value-added (oil refining)	18.0	20.5	2.6	1.1
Value-added (petrochemicals)	6.0	7.4	4.1	8.3
Value-added (other manufacturing)	38.8	51.6	5.9	7.2
Non-oil GDP	433.2	525.3	3.9	4.0
Total GDP	603.6	714.9	3.4	3.2
Industrial Exports	18.9	52.2	22.5	8.3
Industrial Investments	22.9	20.6	-2.1	14.3
Industrial Employment (1000s)	638.5	650.6	0.4	2.3

* Values and percentages are rounded to one decimal point.

Source: Ministry of Economy and Planning

The current situation in the industrial sector will require the enhancement of the forward and backward linkages of Saudi manufacturing industry, since most of the machinery and equipment used in the industrial sector is currently imported. Hence, it is important to stimulate industrial investment and encourage its integration with the international value chain, shifting resources away from the traditional low productivity sectors towards those characterized by high productivity, value-added and advanced technology.

2.5.3.3 Policy for Exploiting Competitive Advantage

The competitive advantage of Saudi industry depends on a number of factors including the level of prices, technological content and performance efficiency. As a consequence, in terms of providing incentives, priority is given to the technology content of industrial projects and those foreign direct investments which make a contribution to the transfer and indigenization of advanced technology, and also to projects which make a contribution to R&D activities (SAMA, 2006).

2.5.3.4 Industrial Sector Employment

Industrial sector employment grew at an average annual rate of 0.4 percent during the Seventh Plan period, rising from 638,500 workers in 1999 to 650,600 in 2004. Saudi employment in the industrial sector increased from about 82,000 in 1999 to about 98,000 in 2004, at an average annual growth rate of 3.6 percent. Nevertheless, the proportion of Saudis in total employment of the sector is still below the desired level, because of the shortage of technical skilled labour among Saudis and easy access to cheap foreign labour. The Kingdom still depends to a large extent on foreign workers. For example, all workers in the construction industry are currently foreign nationals. Hence, efforts are needed to increase the Saudi share of the workforce in such industries.

2.5.4 The Private Sector

At an early stage, development planners in Saudi Arabia adopted the policy of giving the private sector opportunities to engage in a wide range of economic activities. This

made an effective contribution towards support and development of the private sector in the Kingdom and enhanced its role in the national economy. It also augmented the managerial, technical and financial capacity of the private sector and improved its economic efficiency, in terms of both investment and production. As a result, the sector has become capable of mobilizing capital for financing projects and using advanced management techniques and technologies in its operations.

The government has also created an appropriate investment climate to enhance the developmental role of the private sector through the privatization of telecommunications, power generation, desalination and many other fields. The government presents promising investment opportunities which have enhanced the role of the sector in socioeconomic development.

Despite the progress achieved by the private sector, it still faces challenges which should be addressed during the coming period. Foremost among these are: continuing to improve the level of competitiveness of the sector to enable it to face the challenges of globalization; increasing its contribution to production and investment; providing sufficient job opportunities for the growing number of Saudi entrants into the labour market; and increasing its investments in high value-added projects and activities which can be integrated with the basic industrial platforms, particularly the highly competitive export-oriented industries.

2.5.5 Government Capital Stock

During the first three development plans, there was an increased growth of government capital stock, resulting in a rapid increase in replacement requirements. Following the end of the fifth plan and the beginning of the sixth (1995-1999), government investment faced the challenge of keeping abreast of capital (asset) depreciation rates. These developments affected the efficiency of government services differentially. Those having surplus capacity, such as the transport sector, were able to satisfy the growing demand resulting from population and economic growth, while pressure mounted on those services unable keep pace with growth in demand, such as education and certain municipal services, which suffered from a lack of capacity as well as the depreciated quality of this asset base.

More recent efforts in terms of curtailing recurrent expenditure on maintenance and operations have resulted in the sustaining of capital assets and improvements in operational efficiency, hence relieving some of the potential pressures on certain government services. Furthermore, the process of privatization and the growing partnership between the public and private sectors have reduced budgetary burdens and liberated resources to be directed towards investment. However, there are areas that are in need of urgent government initiatives for investment in terms of providing satisfactory conditions for private sector involvement. These areas include physical infrastructure for geographical growth corridors and industrial zones. Government investment is also required in the improvement of the urban and rural environment as well as the development of the education programme, with a view to promoting the knowledge economy. Thus, under the Eighth Plan, the priority is to increase government investment through augmentation of budgetary revenues of operational expenditures and by increasing the efficiency of government expenditures, while maintaining a more favourable balance between recurrent and investment expenditure.

2.5.5.1 Activation of the Saudi Stock Market

The endorsement of the Capital Market Law by the Council of Ministers in 2003 represents a major step towards restructuring the Saudi stock market so that it operates more efficiently, enabling it to expand and create effective instruments for investment of savings, while promoting the requirements of transparency, equity and protection of dealers. The Saudi stock market is the largest and most active in the Gulf region in terms of market capitalization, which reached SR 891 billion in the first quarter of 2007 (Figure 2.6).

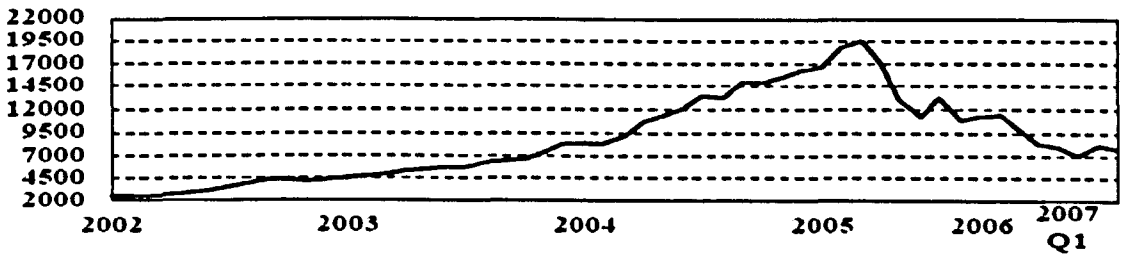


Figure 2.6 General Share Price Index (1985 = 1000)

Source: SAMA, 2007

In 2006, the number of shares traded rose by 11.6 percent to 68.5 billion, compared to 61.4 billion in 2005, due to the effect of the split of the nominal value of the shares of all listed companies into SR 10 per share instead of SR 50 per share in April 2006. Therefore, the number of transactions increased by 106.2 percent to 96.1 million, compared to 46.6 million in the preceding year, with 86 companies trading on the Saudi share market at the end of 2006 having an average market capitalization of $3,800.6 million per company (SAMA, 2007).

Comparative studies also indicate the possibility of making the stock market more developed and comprehensive. However, this will depend to a great extent on the effectiveness of the rules to be set by the Securities and Exchange Commission regarding the regulation of transactions and conditions for listing of companies in the market, as well as the removal of the constraints which impede the development of the market. In this context, the following mechanisms may contribute to the creation of an appropriate investment climate to facilitate the development of the Saudi stock market:

1. Putting more effort into implementation of the Capital Market Law with regard to restructuring and regulating investment in securities and providing more transparency and financial disclosure to companies which issue shares, to assure the safety of dealing in the traded securities.
2. Ensuring measures for the activation of the primary market for shares. The existence of an active primary market is a precondition for an active stock market, since it allows the listing of new shares, thereby enhancing the scope and activities of the market. It is noteworthy that the level of activity of the Saudi primary stock market remains weak. Only 13 companies have been added to the companies listed on the market over the last decade, contributing to an increase of market capitalization of only 3 percent. To address this weakness and to activate the primary market, it may be necessary to:
    a) Accelerate the implementation of the privatization programme.
    b) Encourage the transformation of family-owned companies into joint-stock companies which could be listed on the stock market.

3. Establishing investment banks that will set up and manage investment funds and portfolios, as well as providing investment trust services including advice to investors, marketing of securities covering public subscriptions and delivering other services related to the activation of security markets.
4. Allowing foreigners to invest in shares of some companies listed in the Saudi stock market. This will contribute to channelling the savings of foreigners residing in the Kingdom towards productive activities in the Saudi domestic economy.
5. Evaluating the influence of banks' financing of investment in securities. It is noteworthy that bank finance of private sector investments in securities increased in 2004 by 49 percent as compared to 2003. This may be one of the reasons behind the sharp rise in the general stock price index during 2004.

2.6 Summary

Over the past three decades, Saudi Arabia has given increasing attention to the implementation of a long-term economic development strategy founded on the acceleration of economic growth, the distribution of its fruits in a balanced manner, the development of human resources and the diversification of the economic base and of sources of national income, in order to develop economic channels to supplement revenues from crude oil exports. The effort has aimed at financing government spending (operation and investment), providing public services, building infrastructure projects and financing the growing volume of imports. There has been a concomitant strengthening of the role of the private sector in the economy, reflected in its growing contribution to production, investment, employment and exports.

However, oil remains the single most important engine of Saudi Arabia's economic growth; the oil sector still accounts for half of GDP, although the importance of oil is not limited to this figure. Beyond national accounting, budgetary and financial mechanisms, the major economic balances are based to a very large extent on the existence of large oil revenues received by the state. In its economic development effort, Saudi Arabia has chosen to create a powerful petrochemical industry to

upgrade its hydrocarbon production and to prime the take-off of a diversified industrial sector. This strategy also has implications on the energy balance and regional development of the country. Berne expected in 1985 that the Saudi economy would reduce its dependence on oil, but over twenty years later oil is still by far the most important driver of economic growth and change in the Kingdom, whose economy depends to a large extent on the performance of the oil and gas industry.

Saudi Aramco has introduced the balanced scorecard system with the intention of improving its performance. Hence it is imperative, in the wider Saudi Arabian economic context, to study the implementation of BSC in Saudi Aramco. Chapter Three offers an overview of the company and its operations.

3. AN OVERVIEW OF SAUDI ARAMCO

3.1 Introduction

Energy is a vitally necessary input to economic activity throughout the world. Oil plays a key role in this regard; crude oil is today one of the most highly-valued commodities in international trade. Thus, one of the most influential companies in the world is its largest oil company, the state-owned Saudi Aramco.

There have been many studies of energy security over the years, including those by the CIA[14], EIA[15] and IRA[16]. All have found that Saudi Arabia is a key petroleum exporter and central to a steadily more interdependent global economy. Saudi Arabia is also the only oil producer that has consistently sought to maintain surplus oil production capacity, with a nominal goal of 2 million barrels per day (mbpd). This situation will not change in the foreseeable future.

Saudi Aramco is regarded as a major contributor to the development of Saudi Arabia in general and to the strengthening of the country's economy in particular. The legacy of Saudi Aramco is indeed profound. Oil literally transformed Saudi Arabia from an arid land populated by an independent people with limited resources into a young nation with great potential. Recent years have brought dramatic changes to Saudi Aramco. The company's predecessor, the Arabian American Oil Company (Aramco) had been owned by a consortium of American oil firms. Starting in 1973, beneficial ownership of Aramco's assets and concession rights was gradually acquired by the Saudi government. Although Saudi Aramco was not created as a legal entity until 1988, by 1980 the Saudi government had acquired all of these assets. The company then received a broad new mandate to expand its role as a producer and launch a drive

[14] The Central Intelligence Agency (CIA) is an independent US government agency (more information at www.cia.gov/).
[15] The Energy Information Administration (EIA) is an official US government body providing energy statistics (more information at www.eia.doe.gov/).
[16] IRA was formed in 2005 and has operated 98 wells in Texas (USA), overseeing all oil and gas operators (more information at www.xtremeoilandgas.com).

to become a fully integrated international enterprise. Its significant achievements included the construction of the intra-Kingdom natural-gas gathering, processing and distribution systems to harness this valuable natural resource for domestic use and for export.

There are many reasons for selecting Saudi Aramco as the case-study for this research:

a) It is amongst the largest corporations in the world.
b) It is ranked in the 2007 Energy Intelligence Research as the world's largest oil company.
c) It is a very important organisation in the context not just of Saudi Arabia but of the world economy because of the nature of its business.
d) Domestically, its performance has a great impact on the whole Saudi economy. Saudi Aramco has introduced BSC with a view to improving its performance. Hence, studying BSC implementation in Saudi Aramco is a very important research objective.
e) There has been no previous research done on the topic in this company. There is a likelihood that considerable differences exist between the way BSC is understood and implemented in Saudi Arabia and in Western countries.
f) The organisation had already partly implemented or was in the process of implementing BSC.

This chapter provides a review of the company's most important features. It begins by describing the discovery of oil in Saudi Arabia and the agreement with an international oil company, then outlines the major organizational aspects of Saudi Aramco, its structure and its operations. There follows a discussion of the international implications of Saudi Aramco's operations including the country's membership of OPEC and the WTO. Finally, there is an overview of the performance measurement system used in the company.

3.2 History of the Oil Industry in Saudi Arabia

In the modern era, oil occupies a very important position, as industrial development has been increasingly dependent on it (rather than coal) from the beginning of the 20th century. This demand for oil by industrial states was particularly intense after World War II and this increased its value, so the rate of production increased rapidly.

3.2.1 Early Years

It all started when King Abdul Aziz[17] heard about the discovery of oil in Bahrain, an island off the eastern shore of Saudi Arabia. With the help of John Philby, he was able to convince the Standard Oil Company of California to explore for and exploit the oil in the eastern part of his country.

In 1933, negotiations began between the Finance Minister of Saudi Arabia and the representative of the Standard Oil Company of California (SOCAL), later Chevron, which resulted in the signing of an oil concession agreement on May 29 1933 (Government Agreement 1933, p.1). The original concession agreement, which was amended several times over the years, granted SOCAL the exclusive right to explore for, produce, transport and exploit hydrocarbons in Eastern Saudi Arabia for a period of sixty years. It was also granted an exclusive right to export and sell petroleum and its products which were extracted from the concession area. Most of the agreement's terms dealt with the payments to be made by the company to the government. They provided for an initial loan of thirty thousand pounds in gold or its equivalent to be paid upon the agreement's signature, an advance payment of fifty thousand pounds in gold, and annual surface fees of five thousand pounds in gold or its equivalent (Government Agreement, 1933, p.236). The principal financial feature of this agreement was the royalty, which was fixed at four shillings per ton of crude oil extracted by the company.

[17] The Kingdom was founded by Abdul-Aziz bin Saud, whose efforts began in 1902 when he captured the Al-Saud's ancestral home of Riyadh, and culminated in 1932 with the proclamation and recognition of the Kingdom of Saudi Arabia.

In 1936, the Texas Company (later Texaco) joined the Standard Oil Company of California as 50 per cent shareholder under the name of the California Arabian Standard Oil Company. Considerable funds were spent on that operation, but the result was disappointing. Later, in 1938, petroleum was discovered in commercial quantities. A supplementary agreement was concluded by the Saudi Government with this company on May 31 1939, which extended the concession area and added six years to the concession period, while in February 1944 the name of the company was changed to the Arabian American Oil Company (Aramco). By 1948, two other major American oil companies had acquired an interest in Aramco: Standard Oil of New Jersey, later Exxon, and Socony-Vacuum, later Mobil. The distribution of Aramco capital among these companies was 30% each for Chevron, Texaco and Exxon, with 10% for Mobil.

3.2.2 The Fiscal Relationship between Aramco and the Saudi Government

After 1948, the relationship between Saudi Arabia and Aramco underwent a paradigm shift, for several reasons. Firstly, the value of oil had risen considerably because of the increase in demand by industrial states after the Second World War. Secondly, oil companies in the early part of the century were limited in their Middle East operations by the huge risks that were involved in such investments. Accurate and reliable information on the existence of petroleum in the region was not available. However, soon after the discovery of oil in commercial quantities and of large proven reserves, new independent oil companies started showing interest in the Middle East. Cattan (1967) comments:

> "*It is not surprising that few companies, except the major companies, showed interest during those (early) days in securing oil concessions. It is evident that the major oil companies by their discoveries in Iran, Iraq, Kuwait, Saudi Arabia, Algeria and Libya, not only generally established the existence of oil in those regions but substantially reduced the elements of risk and speculation in oil exploration*" (Cattan, 1967).

The main characteristic of this evolution emerged in the Saudi Government's demand to have its revenues from petroleum production increased, which led to a fifty-fifty profit sharing formula, 'royalty expensing', a participation agreement in 1972, the

government takeover of Aramco in 1976 and the establishment of Saudi Aramco in 1988.

3.2.3 Fifty-Fifty Profit-Sharing Agreement

After discussions with the US government, a new Venezuelan Petroleum Law was passed in 1943 which provided for the fifty-fifty sharing of profits between the oil companies and the government. This was realised through a tax imposed on the value of petroleum at the point of export and resulted in a sharp increase in Venezuelan oil revenues. Meanwhile, the Saudi government was unhappy that the USA had imposed a tax on Aramco's profits in the USA, claiming that they were due to the Saudi government because the profits were gained from the exploitation of Saudi oil (Anderson, 1988). The government requested a renegotiation of its Concession Agreement with Aramco to give Saudi Arabia a share in the profit from its own national petroleum resources. Subsequently, after discussions with the Truman administration, the Fifty-Fifty Profit-Sharing Agreement was finalised on December 30, 1950, providing for the profit Aramco generated through the sale of crude oil from the Saudi seaboard to be shared equally with Saudi Arabia (Anderson, 1988). Article 1 of this Agreement states:

> *"In no case shall the total of income tax and all other taxes, royalties, rentals and exactions of the government for any year exceed 50 per cent of the company's gross income after such gross income had been reduced by Aramco's costs of operations, including by taxes, royalties or exactions."*

Aramco knew that this agreement was a result of discussions between the Saudi and US governments. In return for Aramco's acceptance of the agreement and the tax, the US government accepted Aramco's tax payments in Saudi Arabia as a tax credit in the USA. This meant that Aramco's overall profits were not severely affected, while the Saudi government's income increased.

Earlier in 1950 the State Department had issued a Middle East policy statement recommending that the American government ask oil companies to include in their concessions conditions calling for re-negotiation of financial clauses every five to ten years (Blinn, 1986).

Aramco accepted the fifty-fifty formula after consulting with the State Department. Anderson (1988) comments:

> "*The executive branch of the American government is expected to be behind that issue [the conclusion of the 50/50 Profit-Sharing Agreement], since this Department used the foreign tax credit provision in American tax law as an ingenious way to subsidise Saudi Arabia without needing an appropriation or authorisation from Congress*".

The fifty-fifty formula was the first major step in the realignment of the relationship between Saudi Arabia and Aramco. The former Minister of Petroleum and Mineral Resources, Zaki Yamany[18], has said:

> "*Before 1950, we in the Middle East used to receive our revenues in the form of a flat royalty per unit of production; nothing more... But since 1950 Saudi Arabia changed the tax system and introduced a new formula of 50-50 profit sharing based on posted price*".

3.2.4 Royalty Expensing

In accordance with the above, royalty expensing was treated as a credit against income tax. A demand for separation of royalty from tax payments came in 1965 from the Organization of Petroleum Exporting Countries (OPEC). That is, it required royalty to be an expense item, to be deducted from gross income before the calculation of tax. Initially, this demand was rejected by the concession-holders as a modification of the existing concession agreement, arguing that to justify it "the OPEC countries must prove that an inequity had arisen out of changed circumstances which needed correction" (Mughraby, 1966). After protracted negotiations, the concession-holders agreed on condition that the companies should be given an 8.5% discount off posted prices (Mikdashi, 1966). The result was that royalty was treated as an expense in computing taxable profit, instead of being used as a credit against income tax (Wells, 1971).

[18] The Saudi Minister of Petroleum and Mineral resources from March, 1962 To Oct., 1986

3.2.5 The Participation Agreement and Government Takeover of Aramco

In 1973 the Saudi Arabian government acquired a 25 per cent participation in Aramco, which increased to 60 per cent the following year:

> *"Prior to 1973, Saudi oil policy was almost entirely controlled by Aramco... To the extent the Kingdom did influence oil policy during this period, it consistently urged higher production levels and more exploration in hope of increasing government revenues. Since pricing seemed out of its control, the kingdom urged production increase as the only way to meet its mounting needs for funds"* (Golub, 1985, p.2).

After October 1973, the relationship between the oil companies and the Saudi government changed and control over pricing and production decisions now rested to a large degree with the government, which gave it more revenue for its development plans and to compensate companies for the later takeover.

Negotiations between Saudi Arabia and Aramco's US consortium partners continued and an interim agreement was reached in June 1974 that Saudi Arabia was to acquire 60 percent of Aramco with the Saudi government and sell most of its share of the oil back to the US companies, which could then market it worldwide. Niggling disagreements over how to compensate the companies for Aramco's assets, maintain access to Saudi oil and implement nationalization at a managerial level were finally ironed out in 1976.

With the change of ownership agreement, the rights and assets of Aramco were transferred to Saudi Arabia, while Aramco received the right to market eighty percent of Saudi oil production and earn 21 cents per barrel (Yergin, 1991). The agreement did not result in immediate Saudi ownership, however; the transfer date was unspecified (Brown, 1999) and several key issues remained to be resolved over the coming years, including the compensation price for oil below the ground. The company also had to increase the number of trained Saudi staff to take over day-to-day management and operations. According to Aramco's 1976 annual report, the majority of managers were Americans (Thomas, 1977). After the transfer, the Saudi government gained control of the company's overall direction and decision-making,

although many Americans continued in management and technical posts during the late 1970s and early 1980s. The Saudi Government finally made the announcement on September 5, 1980 that it had completed its purchase of Aramco's assets. Aramco's 1980 profit margin was $1.20 to $1.30 per barrel, totalling $4 billion per year (Stork, 1980). Petroleum Intelligence Weekly (PIW) reported that the Kingdom paid $1.5 billion to compensate the consortium.

In 1980, with retroactive financial effect to 1976, the participation interest of the Saudi government increased to 100 per cent when it paid for substantially all of Aramco's assets. In 1988, the Saudi Arabian Oil Company (Saudi Aramco) was established by Royal Decree to assume the managerial and operational responsibilities being performed by Aramco for the government (Saudi Aramco Report, 1993; 2007) (See Appendix E for timeline of important events in Aramco history 1933-2007).

3.2.6 Legal Considerations

3.2.6.1 Mineral Ownership and Exploitation in Saudi Arabia

According to the legal system of Saudi Arabia, there is a distinction between ownership of the surface of the land and that of its subsoil and any minerals contained in it (Al-ahdab, 1982). This is reflected in Articles 1 and 25 of the original Aramco Concession Agreement of 1933, which provide that a landowner's ownership is confined to the surface of the land and his rights are only to be taken into consideration in the case of expropriation, while the subsoil of the land and its contents are the property of the State. Thus Article 1 of the Mining Code enacted by Royal Decree No.21/m of 20/5/1392 A.H. (1972) reads:

> *"All natural deposits of minerals and quarry deposits in whatever form or composition, whether in the soil or subsoil, anywhere in the state's land and sea territories and all lands and sea areas to which the state's jurisdiction extends, are considered the state's exclusive property...".*

3.2.6.2 The legal Nature of Oil Concession Agreements

A concession is an agreement reached between a state and a private individual or a corporation. It is distinct from a treaty, which is made between states and is

automatically subject to international law, in that only one of the parties to a concession is a state. Similarly, a concession is different from a private contract, which is made between private individuals or corporations.

The subject matter of a concession agreement has a public character, as it deals with public property or the performance of a public service. Thus, there is no agreement among experts in respect of its true legal nature. Some regard it as a private contract, whereas others consider it to be a public one. This lack of agreement has resulted in some taking the view that concession agreements constitute a third group of contracts, sometimes called "state contracts" or "economic development agreements" (Toriguian, 1972, p.26). Verdros (cited by Cattan, 1967) suggests that concessions are "neither contracts nor treaties, [but] a third group of agreements, characterised by the fact that the private rights established by them are governed by a new legal order, created by the concurring wills of the parties". This view is rejected by Ago (1971), who states that "the existence of a third kind of legal system distinct from [national and international law] is ... entirely unknown to me".

The Arbitral Tribunal in the Saudi Arabian-Aramco Arbitration case, reported in 1958 (hereinafter referred to as the Aramco Case), observed that a concession is of double character because it is a state act but one by which rights of ownership rest with the concessionaire. Its overarching objective in the present case is to maximize the overall benefit to the Kingdom from all recoverable onshore and offshore hydrocarbon resources, while providing a fair return to Aramco (Saudi Government Draft, 1988).

Under this broad objective, several interrelated components will need to be assessed and there are thirteen key criteria that the kingdom would like Saudi Aramco to meet:

1. ***Maximise Government Revenue***: Maximize the net present value of all the cash paid by the company to the kingdom over the life of the agreement. The cash flows consist mainly of upfront cash payments, royalties and income tax.
2. ***Resource Stewardship:*** Ensure that hydrocarbon reservoirs are carefully managed.
3. ***Conduct an Exploration Programme:*** To identify the unexplored potential with appropriate balance.

4. ***Facilities Governance:*** The Agreement will facilitate the governance and oversight of the company's activities.
5. ***Development & Production:*** The Company must commit to developing the fields by making all necessary investments and maximum effort to exploit the full potential of the resources.
6. ***Health, Safety and Environmental Stewardship***: The Company must protect its employees and the public by meeting international standards or industry best practices.
7. ***Job Creation and Employee Training & Development:*** The Company must maximize the Saudi component of its labour force and offer training to help their career development.
8. ***Technology Transfer:*** The relevant technology and operational know-how must be transferred to the local employees so that it can be applied elsewhere in the Kingdom.
9. ***Local Industrial Development:*** The Company will promote local industrial development and job creation by suitable investment.
10. ***Local Community Development***: The Company must provide adequate housing, health care, educational and recreation facilities for its employees.
11. ***Local Content of Goods and Services***: The Company must maximize procurement of the necessary materials, equipment and services from qualified Saudi suppliers and providers.
12. ***World-Class Operation Standards***: All operations in the contract area must meet international standards.
13. ***Facility Handover:*** At the end of the Agreement period, the Company shall ensure that all facilities are handed over to the Government in an acceptable condition and that the assets entail no current or future liability (Government Document, 2006).

3.3 Saudi Arabia's Oil Policy

An integrated and dynamic oil strategy has been adopted by the Kingdom, closely following developments in the global oil markets and the petroleum industry. This strategy places special importance on the following policies:

- Adopting a flexible pricing policy that helps to maintain the world's reliance on oil as a main source of energy.
- Setting competitive prices for the Kingdom's oil products in the various international markets.
- Maintaining a production capacity which is in accordance with the global demand for oil and stabilizing the world oil markets in times of crisis by compensating for any potential shortage in supply.
- Continuing with domestic and foreign investment in oil refining and marketing facilities to ensure that the required quantities of Saudi oil are marketed, in order to benefit from the value-added returns from refining and marketing operations.
- Improving and fostering cooperation and coordination with all oil exporting countries within and outside OPEC, and invigorating the dialogue with consumer countries. Hosting of the General Secretariat of the International Energy Forum in Riyadh is expected to stimulate dialogue between exporting and consuming countries to serve the global economy.
- Addressing concerns regarding environmental pollution and global warming trends while at the same time combating policies and measures that might jeopardize the Kingdom's oil interests; participating effectively in international meetings on environmental protection, particularly those adopted by the UN and other international organizations; and cooperating with developing countries, particularly oil producers, on oil, energy and the environment.

The author believes that the Saudi policy is still to maintain surplus production, but there are few details on Saudi plans and capacity, while the impact of global economic conditions is highly unpredictable.

3.3.1 The Political Structure of Oil Policy Decision Making

In a number of oil producing countries, the political system is centralized and few institutions are involved in decision-making. In Saudi Arabia, proposals regarding the

oil and gas sector may be debated only by the Board of Saudi Aramco as the national oil company (NOC) or by a higher governing body such as the Supreme Petroleum Council (SPC). Political representation on such bodies may include relevant ministries, such as those of finance and planning, and some representatives from civil society (such as the chambers of commerce). In the case of Saudi Arabia, there is a corporate organisation with an advisory board which includes non-government industry experts, as well as the retired presidents of Marathon and Texaco and the former vice chairman of JP Morgan & Co (Saudi Aramco Annual Report, 2005). However, decision-making is hierarchical and dominated by the involvement of a strong political actor (usually the minister of petroleum on the Board and ruler of the country on the SPC). Centralized systems may not be as antagonistic as they appear. The centralization of government allows the Head of State to define clear responsibilities, thus decreasing the necessity for the company management to be involved in public or inter-agency debate about policy choices outside its business remit.

To understand the process of petroleum decision-making, it is necessary to look at the political structure of Saudi Arabia. The decision-making process reflects the political and administrative structure of the Kingdom. The Council of Ministers (COM) is the decision-making body which passes legislation, while the Consultative Council has an advisory role and helps to initiate legislation (for details, see Chapter Two). In brief, the decision-making process starts from the highest authority, the King, followed by the Council of Ministers, the Ministry of Petroleum and other organisations involved in oil decision-making.

3.3.2 The Ministry of Petroleum and Mineral Resources

The Directorate of Oil and Mining was established in 1953 as part of the Ministry of Finance, becoming the Directorate General of Petroleum and Minerals in 1957 and subsequently the Ministry of Petroleum and Mineral Resources (MINPET) in December 1960. The primary activity of MINIPET is to provide advice and recommendations on the petroleum policy of the Kingdom to the King and the Council of Ministers. The King retains the final decision-making authority on petroleum issues, even after the establishment of the SPC in 1973.

The Ministry is not the primary policy maker, but formulates most of the policy decisions, with advice from Saudi Aramco on technical issues such as exploration, development, gas utilization and production. After the Ministry has formulated the policy and it has been approved by the King or the COM, MINIPET either implements it or directs Aramco to execute it. Even now (2007), with a Minister who has had 47 years experience of working for Aramco and was its first Saudi president, the company still receives orders from MINIPET after each OPEC meeting regarding the production allocation. For instance, with regard to relations with OPEC, the Ministry monitors all the changes in the world, prepares for each OPEC meeting and reads and discusses all oil-related matters. It then gives advice to the Council of Ministers or directly to the King. Most of the decisions on oil policy take place in this administrative structure, although at times the personal relations between the king and the minister (for example between King Faisal and Zaki Yamani between 1964 and 1975) help to speed up the process of implementation of the recommendations by the Ministry. A few years before King Faisal's death, the Supreme Petroleum Council was established and subsequently all decisions on petroleum issues have gone through it. During the reign of King Khalid there was direct contact between the Crown Prince, as de facto premier, and the Ministers. When King Fahad acceded to the throne, he became more involved in petroleum decisions (See Appendix D for the chronology of the participants in the decision-making process in Saudi Arabia).

As the entire sector is state owned, the management of hydrocarbon resources is therefore processed through several agencies, primarily MINIPET and the SPC, before being implemented by the oil companies. The structure of policy-making on petroleum affairs in Saudi Arabia is set out graphically in Figure 3.1.

3.3.3 Supreme Council for Petroleum and Mineral Affairs

In January 2000 a Royal Order established a governmental body of the Kingdom of Saudi Arabia called the Supreme Council for Petroleum and Mineral Affairs (SCPMA), responsible for oil, gas and mineral industry-related issues and polices in the Kingdom. The SCPMA is chaired by the King, with the Crown Prince acting as vice chairman. The membership also includes six ministries and the president of Saudi Aramco. Its responsibilities include the following:

- Studying draft international agreements in the area of oil, gas and minerals.
- Approving oil and gas polices and strategies (e.g. approving Saudi Aramco's work plan for the period 2006-2010, the annual report of the Board of Directors and its balance sheet).
- Drawing up the general policy of Saudi Aramco for the expansion of its activities (internal and external).
- Determining the remuneration of the Chairman and members of the Board of Saudi Aramco.

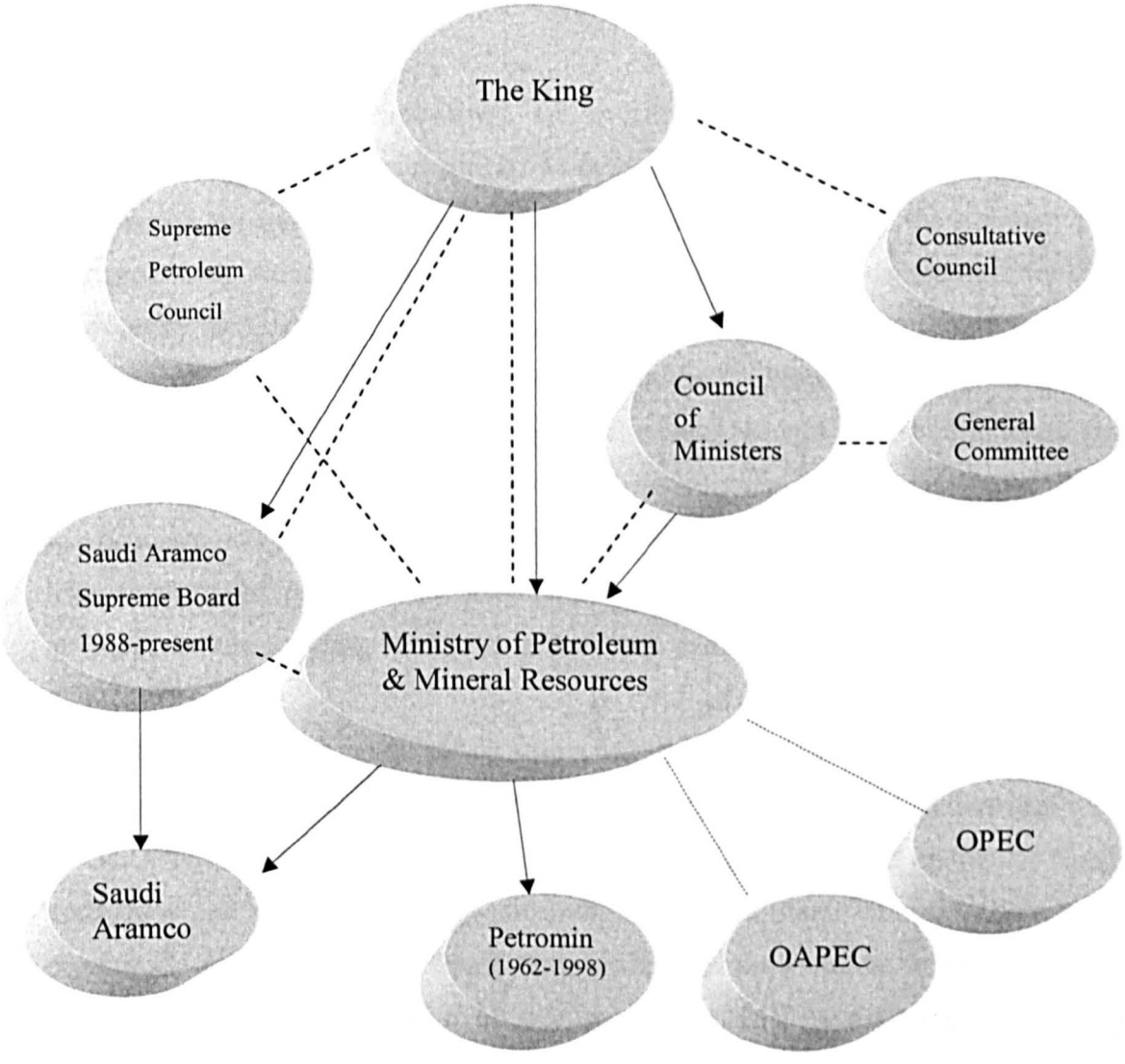


Figure 3.1 Saudi Government Petroleum Policy-Making Structure

3.4 Saudi Aramco

In November 1988 Saudi Aramco was established by royal decree as the final stage in the takeover of the assets of the Aramco concessionaire companies (Chevron, Texaco, Exxon and Mobil) by the Saudi Government. In 1980, with retroactive financial effect to 1976, the participation interest of the Saudi government increased to 100% when it paid substantially for Aramco's entire assets. In 1988 Saudi Aramco assumed the managerial and operational responsibilities formerly carried out by Aramco for the government (Saudi Aramco Report, 1993).

The company, whose headquarters are in Dhahran, had in 2006 some 51,356 employees, 44,702 being Saudi and 6,654 expatriates (Saudi Aramco Report, 2006). It experienced yet another development in recent years. In July 1993, the company was entrusted with broad additional responsibilities when a royal decree sanctioned a decision by the Council of Ministers to merge into the company all of the Kingdom's oil refineries and petroleum product distribution facilities, including Petromin's interests in joint venture refineries. This development brought greater complexity and diversification to the already complicated operations of the company, whose management network now includes offices in Jeddah, Riyadh, Yanbu and Dammam. This development increased the challenges facing the management and certainly had an impact on the company's position in the world's oil industry.

Domestically, Saudi Aramco serves many functions in Saudi society. One important aspect of its mission is to play a redistributive role in managing Saudi Arabia's oil assets. Domestic fuel supplies are subsidized by the firm to the benefit of Saudi consumers and domestic industry. In order to provide Saudi citizens with a more economical fuel for their cars, Saudi Aramco unveiled the premium 91 grade of petrol in December 2006, to be sold at 60 halalas per litre, 25% cheaper than the existing premium 95 grade. The majority of vehicles in the kingdom are suited to using the 91-octane fuel. However, with the king's decision to rescind the price increase in 2007, premium 91 was to be sold at 45 halalas per litre and premium 95 at 60 halalas per litre (Saudi Aramco Report, 2007). The firm also supplies cheap natural gas feedstock to important Saudi industries such as the electricity and petrochemical sectors.

Saudi Aramco lost no time in meeting its national and international mandates. A new International Operations business line was established to develop downstream alliances with strong foreign partners in their home countries. The company also embarked on a massive expansion programme, upgrading old facilities and building new ones to sustain a production capacity of 12 million barrels of crude oil per day by the end of 2009 (Saudi Aramco Report, 2006). Further developments affected virtually every corner of company operations, all contributing to the goal of affirming Saudi Aramco's position as the world's largest oil-producing company.

3.4.1 The Corporate Organization of Saudi Aramco

The powers of the Saudi Arabian Oil Company are vested in the Supreme Council for Petroleum and Mineral Affairs (Supreme Council), the Board of Directors, Committees of the Board and the Corporation officers.

3.4.1.1 The Supreme Council

The Supreme Council is constituted under the chairmanship of the President of the Council of Ministers or his designated representative and shall have ten members appointed by Royal order (Ac XII, 1988). The Supreme Council is empowered to determine the general policy of the Corporation and shall specifically:

1. Endorse the Corporation's five-year business plan, including its programmes for crude oil production and for exploration and development of new hydrocarbon reserves.
2. Endorse the Corporation's five-year programme for future capital investments.
3. Appoint a President for the Corporation at the nomination of the Board of Directors.
4. Appoint the Auditor and determine his remuneration.
5. Discuss the Auditor's Report and approve the Corporation's balance sheet and profit and loss account.
6. Approve the annual report of the Board of Directors and grant release to the members of the Board for their management for the applicable year.
7. Decide on increasing or decreasing the Corporation's capital or the participation by others therein.
8. Determine the remuneration of the chairman and members of the Board.

9. Allocate any increase in the Corporation's net worth and assets over the Corporation's capital either to increase capital or to be credited to the reserve account.
10. Resolve all other matters presented by the Board of Directors (Management Guide, Saudi Aramco, 2000).

3.4.1.2 The Board of Directors

The Board of Directors of the Corporation is constituted under the chairmanship of the Minister of Petroleum and Mineral Resources and shall have a minimum of eight members appointed by Royal order based on the recommendation of the Minister. Four of the members shall be officers of the Corporation, including the President. A member's term shall be three years, subject to renewal or extension (Ac XVI, 1988). Subject to the provision of law, the Corporation's Articles of Incorporation and its By-Laws, and without prejudice to the power of the Supreme Council, the Board of Directors has the authority to discharge the Corporation's functions and to manage the Corporation on a purely commercial basis. Specifically and without limitations, the Board of Directors shall be empowered to:

1. Establish By-Laws for its own operations.
2. Nominate a president of the Corporation and appoint such other officers of the Corporation as the Board deems necessary.
3. Manage and direct the ongoing operations of the Corporation in a cost-effective and efficient manner.
4. Direct the preparation of the Corporation's Business plan and approve its annual budgets.
5. Approve the Corporation's internal, financial, administrative, technical and personnel policies.
6. Authorize the Corporation's officers to sign on behalf of the Corporation within the limits of the rules established by the Board of Directors.
7. Establish Committees and assign them powers as deemed appropriate by the Board for the resolution of matters brought before them.
8. Coordinate between the various committees of the Board of Directors.
9. Approve the establishment of corporate subsidiaries, branches, offices and agencies.

10. Authorize the contracting of loans and mortgages.
11. Authorize the investment of the Corporation's liquid assets.

3.4.1.3 The Executive Committee

The Executive Committee designated by the Board of Directors shall have the power and authority delegated to it by the Board of Directors. Specific functions of the Executive Committee are:

1. To review and approve the Accountability Reports of the Corporation.
2. To review and approve expenditure request for items covered in approved business plans, budgets and programmes.
3. To review and approve redefinitions, cancellations and supplements of previously approved expenditure requests.
4. To consider and approve the appointment of officers of the Corporation.
5. To review and approve proposed retirements, abandonments or other disposals, without financial consideration, of surplus corporate property having more than nominal salvage value or, regardless of salvage value, net book value of $100,000 or more.
6. To consider and approve annual operating plans and budgets.
7. To consider reports submitted to it in accordance with specific functions and subjects delegated by the Board of Directors from time to time.
8. To receive informational reports on miscellaneous subjects and advise management thereon.
9. To consider and endorse specific elements of the proposed operating plans, business plans and programmes, including new capital investment proposals.

3.4.1.4 The Compensation Committee

The Compensation Committee, designated by the Board of Directors, shall consider and approve promotions, salaries and other compensation matters and administer any incentive compensation plan of the Corporation which may be in effect from time to time, in accordance with the power and authority delegated to it by the Board of Directors.

3.4.1.5 The Audit Committee

The Audit Committee, designated by the Board, shall review and consider the effectiveness of corporate controls, the Corporation's adherence to its policies, the performance and results of audit activities and other matters in accordance with the power and authority delegated to it by the Board of directors.

3.4.2 Saudi Aramco's Organisational Structure

The articles of incorporation of the Saudi Arabian Oil Company (12-23, 1988) provide that the company is to have a Supreme Council, a Board of Directors, a president, and such other officers and staff to perform the duties which the company may require to accomplish its purpose. In theory at least, the code grants the Supreme Council the company's highest authority. The Council consists of ten members appointed by Royal Decree under the presidency of the Prime Minister (the King) or his appointed deputy. The composition of the Supreme Council is laid down in the guidelines that govern its meetings and define its purpose and duties.

Next in the hierarchical line of authority comes the Board of Directors, which is in effect the company's deliberative and advisory body. The code gives great authority to and vests considerable powers in the Board of Directors, making it responsible for defining all policy matters and conducting the general operations of the company. The code states that the Board is to be chaired by the Minister of Petroleum and Mineral Resources. It also establishes that four of the Board's members must be executives in charge of management of the company, including its president. Articles 16-21 of the company's code deal with the composition of the Board, specify its duties and establish the rules that guide the accomplishment of these duties.

The daily business of the company, according to the code, is to be conducted under the direction of a president, appointed by the Supreme Council "at the recommendation of the Board of Directors" (Article 15-C). The president is the chief executive officer, responsible for the overall management of the company. He has the power to:

- Prepare for the meetings of the Board of Directors.

- Implement the resolutions of the Board of Directors.
- Compile the general budget of the company, the profit and loss account and the annual budgets.
- Supervise the company's managers, officers and workers in accordance with the provisions of the respective ordinances.
- Issue orders for company expenditure in accordance with the approved annual budget. He may also delegate these powers to others.
- Discharge all other responsibilities assigned to him by the resolutions of the Board and the company's regulations and ordinances.
- Delegate responsibilities to other management personnel of the company as he deems fit within the limits of the company's regulations and ordinances.

Administratively, the company is divided into six major sections called Business Areas: Exploration and Production; Refinery, Marketing and International; Gas Operations; Engineering and Operations Services; Finance; and Industrial Relations. These business areas should not be confused with strategic Business Units, as they are interdependent and part of a functional division/organization, each headed by an executive vice-president and matched by corresponding organizational structures. (See Appendix F for biographical details of the Aramco Corporate Management Team).

Each business area in such a large company has its own primary functions, shown in detail in Figure 3.2 and summarised as follows:

- **Exploration and Production** comprises all activities related to the exploration, development and production of oil and gas prospects, the maintaining of potential and the processing of oil.
- **Refining, Marketing and International** covers activities related to the refining and supply of oil, together with the company's domestic products, international sales and marketing, and the shipping of oil and refined products through its stake in five refineries in the USA, Korea, the Philippines and Japan. It is also responsible for the management and procurement of domestic and international downstream ventures and acquisitions.

- **Gas Operations** comprise all operations and facilities involving the processing and fractionation of gas and the development of domestic markets for gas products.
- **Engineering and Operation Services** is responsible for corporate engineering, project management, materials supply and a range of operational and industrial support activities.
- **Finance** includes accounting, treasury and auditing responsibilities for all company businesses.
- **Industrial Relations** is the business area responsible for essential services such as personnel, medical, community services, government and public affairs, and industrial security.

In Saudi Aramco, operation plans cover administrative and general (A&G) functions, including finance, corporate planning, management services and law. A&G's primary roles are to provide critical support to assist management in achieving the company's operational and strategic objectives, to provide advisory services and to assist with leadership development.

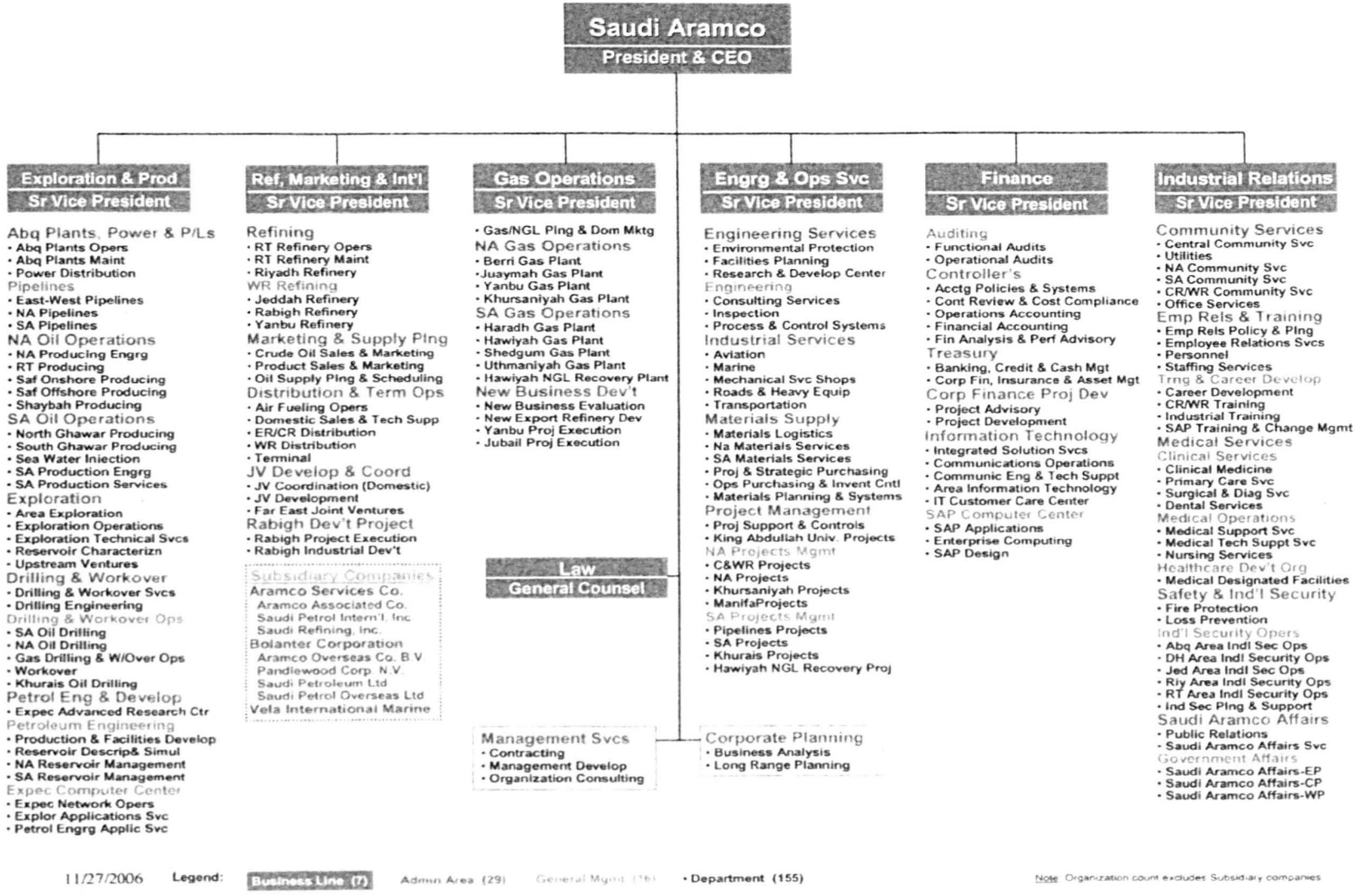


Figure 3.2 Saudi Aramco business areas

Two departments on which the present study focuses are those concerned with finance and corporate planning. First, the **Finance Department** has embarked on a journey to transform its organisation and work culture in an effort to better align itself with and more effectively support Saudi Aramco's strategic imperatives. A transformation process has begun to define clearly its vision of the future, its mission, strategic roles and responsibilities, and its approach to bringing about changes to customer and employee perceptions of how effectively the organisation is supporting these imperatives. The pressure on the Finance Department to re-evaluate its role in the corporation and transform how it operates emerges from the following major forces:

1) **Effective resource allocation**: Finance customers are demanding enhanced services delivered faster and more cheaply. Meeting this challenge requires Finance to view its work from a process rather than from a functional viewpoint. It must find ways to be at the leading edge of efficient transaction processing by employing good process design performed by an educated and trained workforce, enabled by the right technology. Other resources must be refocused into more value-adding activities.
2) **Customer demand for advisory services**: Corporate management requires that Finance take a proactive leadership role by providing increased financial advisory services for enhanced support of reorganisation initiatives, joint ventures and partnerships.
3) **Corporate demand for performance management**: Key challenges faced by the company in implementing a proper strategic performance management system include clearly linking operational metrics to corporate objectives. Finance is taking a leadership role in developing corporate financial performance metrics.
4) **Stakeholder requirement for increase value**: There is increased focus on value creation. Stakeholders require Finance to provide the financial expertise and business acumen to ensure that business decisions across the company maximize shareholder value. Finance must be transformed into a key business partner, requiring finance initiatives which would:
    - Optimize workforce capabilities;
    - Improve the quality and timeliness of information to management;
    - Establish and monitor a decision framework to drive internal capital allocation; and

- Enhance the planning process to integrate strategy effectively with operations.

Second, the **Corporate Planning Department** serves as the catalyst and facilitator for the development and formulation of the company's long-term plans. It seeks to improve assessment of the world economic, energy and refinery outlooks with emphasis on the petroleum market to provide better analytical support to management. Supply and demand projections will be enhanced to incorporate additional information to simulate oil market scenarios resulting from political, economic or natural disruptions and incorporate the findings of these scenarios into outlook deliverables. Corporate Planning will continue to coordinate the preparation of the five-year business plan and take a leading role in strategic planning workshops. It will continue to play a major supporting role in the preparation of the Kingdom's oil and gas strategies and in its five-year development plans for the energy sector. The energy information system will be enhanced to meet the needs of research, studies, forecasts and related activities in the fields of energy and energy economics. Corporate Planning will continue to ensure that the major projects are based on sound economics. Under the direction of MINIPET, Saudi Aramco will participate in negotiations concerning international energy to protect Saudi economic interests.

3.4.3 Domestic Operations

During 2006, the company experienced the start of its largest production capacity expansion programme in more than a quarter century. It reports that by 2009, it will add another 3 mbpd of new net capacity through many projects of extremely wide scope. The new crude oil production and process facilities will supply the lighter crude grade[19] most in demand. For example, the Haradh-III increment, located at the southern tip of Ghawar, the world's largest onshore oil field, and due for start-up in early 2006, is the final phase of the Haradh Development Project. The gas-oil separation plant (GOSP-III) will yield 300,000 bpd of Arabian light crude oil and 140 million standard cubic feet per day (scfd) of associated gas. Perhaps the fourth-largest

[19] Saudi crude is classified as Arabian super light (ASL)/API>40, Arabian extra light (AXL)/API 36-40, Arabian light (AL)/API 32-36, Arabian medium (AM)API 29-32, and Arabian heavy (AH)/API<29.

oilfield development project ever undertaken, the Khurais Project, which will also include production from the Abu Jifan and Mazalij fields, is forecast to produce 1.2 mbpd of Arab light crude oil by 2009. The Abu Hadriyah, Fadhili and Khursaniyah fields were discovered in 1940, 1949 and 1956 respectively, but were closed down during the 1980s following a decline in global demand. Today, these same fields are being revived, with the production of 500,000 bpd of Arabian light. Including gas production from other fields, 1 billion scfd of associated gas was forecast to come online in December 2007, while the Shaybah facility has delivered 500,000 bpd of AXL and an additional 250,000 bpd is under way. Finally, the fifth-largest crude oil field in the world, Manifa, discovered in 1957, will produce 900,000 bpd AH in 2011, as shown in Table 3.1 (Aramco Facts and Figures, 2006).

Table 3.1 Increase in Saudi production capacity by field, 2005-2009

Oilfield	Grade	Est. Cost ($Billion)	New Capacity (bpd)	Expected Date
Haradh	AL	1.0	300,000	2006
Khursaniyah	AL & AXL	3.0	500,0000	2007
Shaybah	AXL	1.0	500,000 to 750,000	2008
Khoreis	AXL	5.0	1,000,000 to 1,200,0000	2009
Manifa	AH	3.0	900,000	2011
Total		**$13-15 billion in investments**	**2,900,000 to 3,350,000**	

Source: Saudi Aramco – Operation Plan, 2006

Table 3.2 shows the crude oil production figures for 2007. Currently, in terms of production activities, Saudi Aramco has five major crude oil increments at various stages of development, with a total production capacity of some three million barrels per day, which by the end of 2009 will reach 12 mbpd. Ali I. Al-Naimi, Minister of Petroleum and Mineral Resources, has stated:

> *"This is not the end of the age of oil, as some pessimists have been saying. There is plenty of oil left to be found and produced, and petroleum will remain the dominant energy source for years to come. I assure you that Saudi Arabia's reserves are real and that we have the potential to produce at much higher rates in line with the growing demand for many years."*

Table 3.2 Oil Production in Saudi Aramco, 2007

Crude Grade	Production (mbpd)
Arabian Super Light	100
Arabian Extra Light	1,175
Arabian Light	5,690
Arabian Medium	1,335
Arabian Heavy	900
TOTAL CRUDE	**9,200**

Source: Saudi Aramco (Operation plan, 2007)

On the other hand, in the Kingdom, Aramco has established strategic partnerships with Shell (SASREF, in Jubail) and ExxonMobil (SAMREF, in Yanbu) in the refining sector, with capacity of 705,000 bpd in 2006, as shown in Table 3.3.

Table 3.3 Joint Venture Refining Capacity in Saudi Arabia, 2006

(Thousand of barrels per day)

Company	Location	Refining Capacity	Saudi Aramco %
Saudi Aramco Mobil Refinery Company (SAMREF)	Yanbu	400	50%
Saudi Aramco Shell Refinery Company (SASREF)	Jubail	305	50%

Source: Saudi Aramco Annual Report 2006

The Master Gas System continued to expand in 2006, with construction starting in August on the Hawiyah NGL Recovery Plant for completion in 2008. The plant is designed to process nearly 4 billion scfd of gas and to yield 310,000 bpd of natural gas liquids (NGLs). The Hawiyah Gas Plant will also be expanded by 50 percent. Construction started in September 2005 on a new plant at Khursaniyah, intended to process 300 million scfd of sour gas associated with the development of the Abu Hadriyah, Fadhili and Khursaniyah oil fields (Aramco Facts and Figures, 2005).

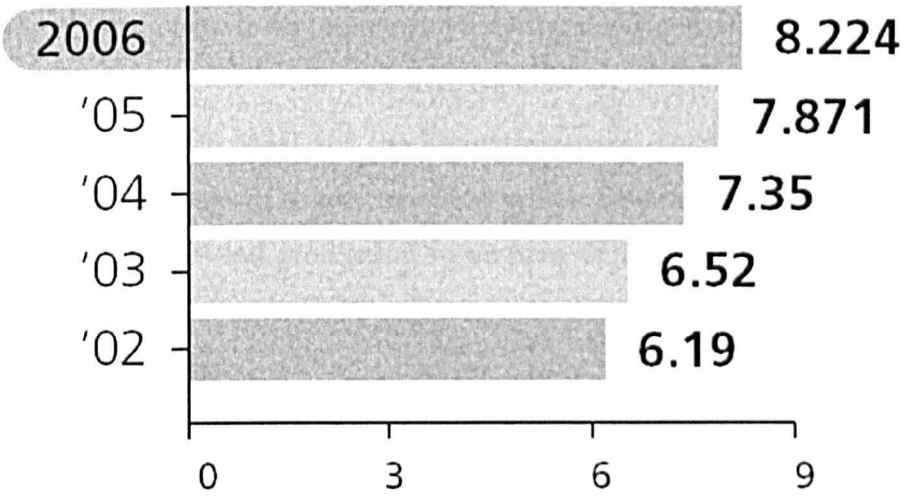


Figure 3.3 Raw Gas to Gas Plants (billion scfd)

Source: Saudi Aramco annual report, 2006

Finally, in order to accommodate the processing of higher levels of NGLs received from both the Hawiyah NGL Recovery Plant and Khursaniyah Gas Plant, the capacity of the Ju'aymah Gas Plant was planned to be expanded by 45 percent by 2008. The vast scope of projects under way or in the planning stages created considerable opportunities for local economic development, and Saudi Aramco is aggressively seeking the participation of private-sector businesses and promoting Saudization – the twin pillars of its economic development strategy (Aramco Facts and Figures, 2006).

3.4.3.1 Joint Ventures in Gas Operations

Aramco is also engaged in a series of natural gas development programmes including four upstream gas ventures with international companies. The company is fully committed to satisfying the Kingdom's development goals, including developing its industrial base, diversifying its economy, helping to create jobs for Saudi nationals and maximizing the value of its natural resources.

The Seventh Development Plan period witnessed the first fruits of the initiative launched by the Crown Prince in 1998 for opening the gas sector to private local and foreign investment. Contracts were concluded with three international groups in 2004 under the Saudi Gas Initiative. During 2003 and 2004, four main gas ventures were

concluded with the participation of international oil companies. The following four joint ventures were to be implemented during the Eighth Plan period:

- Royal Dutch Shell and the French company Total signed an agreement for the establishment of a new company which obtained a 25-year concession for gas exploration and production in an area of 210,000 km^2 in the Empty Quarter. Shell would control 40 percent, with Total and Saudi Aramco controlling 30 percent each.
- Lukoil of Russia signed an agreement to explore an area of 29,900 km^2 in the northern part of the Empty Quarter. A new company, 80 percent owned by Lukoil and 20 percent by Saudi Aramco, was set up to run the joint venture.
- China Petroleum and Chemical Corporation (SINOPEC) signed an agreement to explore an area of 38,800km^2. A new company, 80 percent owned by SINOPEC and 20 percent by Saudi Aramco, was set up for this.
- A consortium of Italy's ENI and Spain's REPSOL signed an agreement for the exploration of an area of 52,000 km^2. The ENI/REPSOL consortium and Saudi Aramco have established a company to handle the joint venture, in which ENI holds 50 percent, REPSOL 30 percent and Saudi Aramco 20 percent (Saudi Arabia, Fact and Figures, 2006).

3.4.4 International Operations

To help satisfy the current projected growth for petroleum and to provide for a secure energy future, the company has plans for a series of production increments that will gradually raise its maximum sustained capacity to 12 mbpd (Saudi Aramco Facts and Figures, 2006). The range of projects in the company's current plans is not restricted to crude oil production, however, but extends to the expansion of natural gas production capacity and new petrochemical, refining and marketing ventures (Saudi Aramco Facts and Figures, 2006).

Therefore, it has marketing support affiliates in Asia and the Pacific, Europe and North America, while its shipping subsidiary, Vela International Marine, operates one of the world's largest fleets of supertankers. Aramco and its affiliates hold stakes in a number of refining and marketing enterprises around the globe, including the Motiva

joint venture with Shell in the United States, S-Oil in Korea, Petron in the Philippines and Showa Shell in Japan (Table 3.4).

Table 3.4 Joint Ventures in International Refining Operations

Company	Location	Refining Capacity	Saudi Aramco %
Motiva Enterprises	Texas, USA	725	50%
S-Oil	Korea	525	35%
Petron	Philippines	180	40%
Showa Shell	Japan	515	14.96%

Source: Saudi Aramco Annual Report 2006

In July, Aramco also began construction on a project with Sinopec and ExxonMobil to triple the capacity of Sinopec's existing Fujian refinery in southern China to 240,000 bpd and add petrochemical manufacturing capacity (Aramco Facts and Figures, 2006).

A perceived need for Aramco to improve its position in the market has led to several such joint ventures in different part of world, as listed in Figure 3-4. These joint ventures serve two purposes for Saudi Aramco: to invest in other markets overseas and to guarantee some customers for the crude oil and gas products that it ships from Saudi Arabia. Figure 3.4 shows Saudi Aramco shares in various operations worldwide.

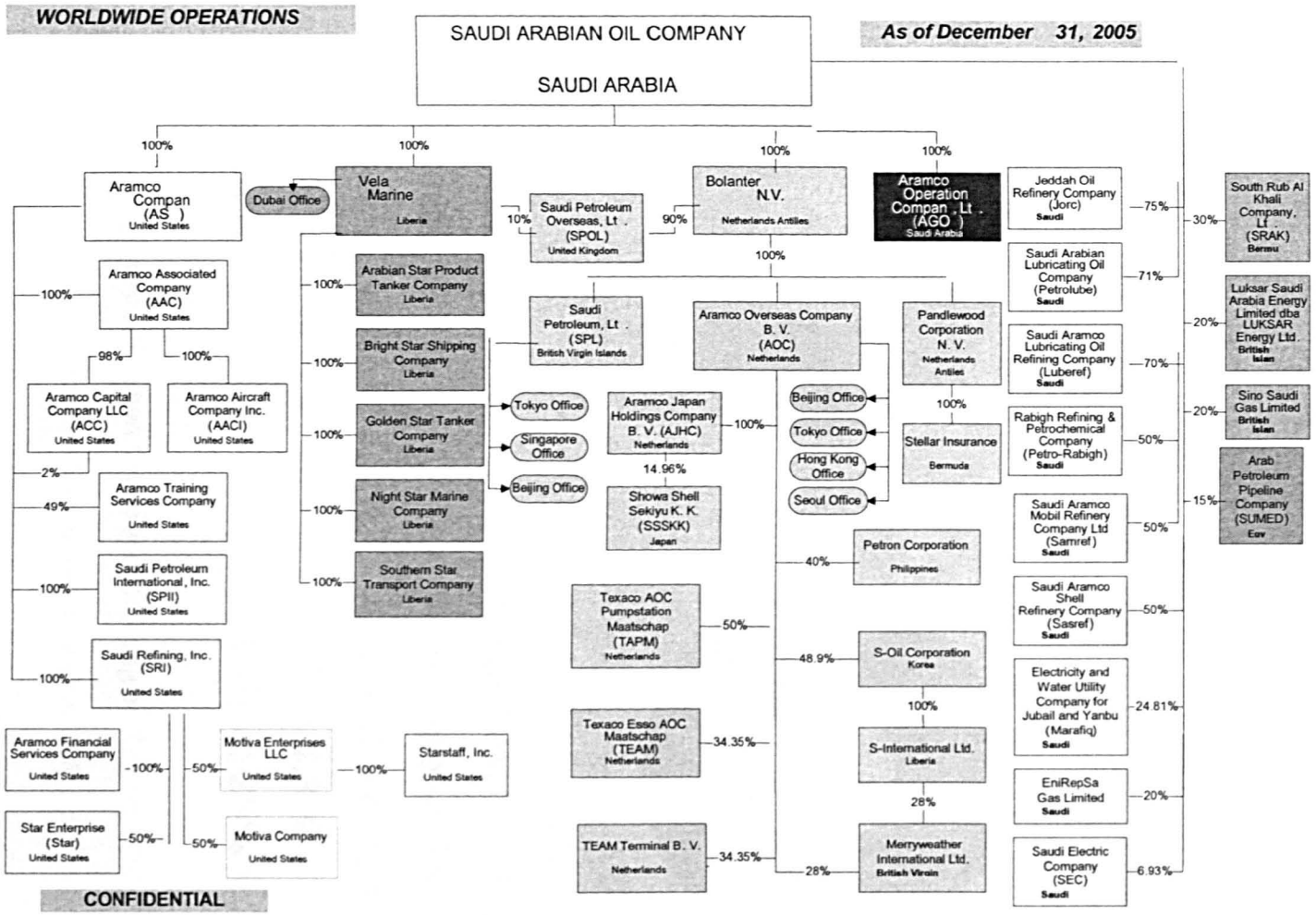
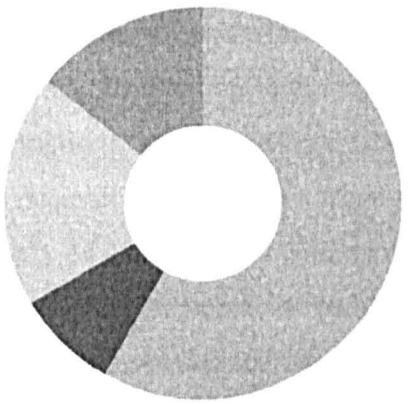


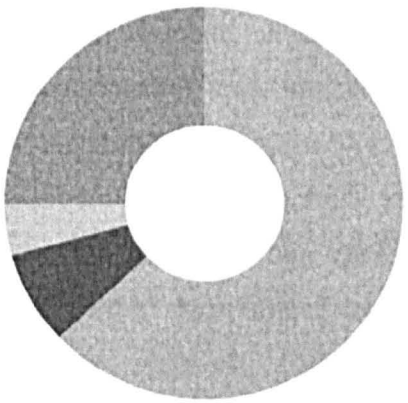
Figure 3.4 Worldwide Operations – Saudi Aramco Share

3.4.4.1 Saudi Aramco Exports

Saudi Arabia's primary oil export terminals are located at Ras Tanura (5.5-6.0 mbpd capacity; the world's largest offshore oil loading facility) and Ju'aymh (3.0-3.5 mbpd) on the Arabian Gulf, and at Yanbu (4.5-5.0 mbpd) on the Red Sea.

Figure 3.5 shows that the major Saudi Aramco exports, in terms of both crude and refined products, are to the countries of the Far East. The next major share of crude oil exports is to the USA at 19.2%. For refined products, the share of other countries is 25%.





CRUDE:

- Far East: **51.6%**
- Europe: **6.6%**
- Mediterranean: **8.4%**
- USA: **19.2%**
- Other: **14.2%**

REFINED PRODUCTS:

- Far East: **54.4%**
- Europe: **8.6%**
- Mediterranean: **7.7%**
- USA: **4.3%**
- Other: **25%**

Figure 3.5 Export Crude and Refining by Region, 2006

Source: Saudi Aramco annual Report, 2006

3.4.5 International Relations

3.4.5.1 OPEC

The Organisation of Petroleum Exporting Countries is a permanent intergovernmental organization that co-ordinates and unifies the petroleum policies of its member states. Membership is voluntary, so no state is under any form of obligation to join it. Its members are 13 oil-exporting developing nations; and any country with a substantial net export of crude petroleum which has fundamentally similar interests may become a full member if accepted by a majority of three-quarters of existing full members, including all founder members.

OPEC seeks to ensure the stabilization of oil prices in international oil markets with a view to eliminating economically and socially harmful and unnecessary price fluctuations, while bearing in mind the interests of producing nations with respect to the necessity of securing a steady income for them; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on their capital to those investing in the petroleum industry. Within the context of these objectives, OPEC can be seen as a specialized oil cartel.

The OPEC charter distinguishes three categories of membership: founder member, full member and associate member. Founder members are those which were represented at OPEC's first conference in Baghdad in 1960 and which signed the original agreement establishing OPEC, while an associate member is a country that does not qualify for full membership, but which may be admitted under special conditions. Table 3.5 lists the full members.

Table 3.5 OPEC Member Countries

Founder Members	Year of accession	Location
Saudi Arabia	1960	Middle East
IR Iran	1960	Middle East
Kuwait	1960	Middle East
Iraq	1960	Middle East
Venezuela	1960	South America
Full Members		
Algeria	1969	Africa
Angola	2007	Africa
Ecuador	1973*	South America
Indonesia	1962	Asia
SP Libyan AJ	1962	Africa
Nigeria	1971	Africa
Qatar	1961	Middle East
United Arab Emirate	1967	Middle East

*Ecuador suspended its Membership in December 1992 and reactivated it in October 2007.

The supreme authority of the Organisation is its Conference, consisting of delegations normally headed by the oil ministers of Member Countries. It meets twice a year (in March and September) and is responsible for the formulation of the general policy of the organization and determining appropriate means of implementation.

While OPEC does not control the oil market, its members produce 43% of the world crude oil and 18% of its natural gas, with oil exports representing about 51% of the crude oil traded internationally. Therefore, OPEC can have a strong influence on the oil market, especially if it decides to reduce or increase its level of production[20]. Table 3-6 shows the crude oil production figures for the OPEC countries.

OPEC production averaged 30.9 mbpd in 2006, and this was 0.2 mbpd lower than in 2005. The decline was attributable mainly to the production cut of 1.2 mbpd in November 2006, as agreed by Member Countries in order to balance the market.

[20] Retrieved online in March 2007 from http://opec.org/

Table 3.6 OPEC crude oil production – 000 bpd

	2001	2002	2003	2004	2005	2006
Algeria	827	864	1,134	1,228	1,349	1,366
Angola	734	893	900	1,019	1,241	1,387
Indonesia	1,213	1,120	1,027	968	942	895
IR Iran	3,672	3,416	3,751	3,920	3,924	3,845
Iraq	2,376	2,000	1,321	2,015	1,830	1,932
Kuwait	2,021	1,885	2,165	2,344	2,504	2,504
Saudi Arabia	7,939	7,535	8,696	8,957	9,390	9,111
SP Libyan AJ	1,361	1,314	1,422	1,537	1,642	1,702
Nigeria	2,098	1,969	2,136	2,322	2,412	2,233
Qatar	685	649	734	771	792	822
UAE	2,151	1,988	2,243	2,360	2,447	2,540
Venezuela	2,891	2,617	2,312	2,582	2,633	2,539
Total OPEC	27,968	26,249	27,844	30,023	31,105	30,877

Sources: Secretariat assessments of selected secondary sources (OPEC annual Report, 2006).

As shown in Table 3.7, non-OPEC supply increased by 0.47 mbpd over 2005, with an increase of 0.97 mbpd in world oil demand resulting in a rise in the difference between the two amounts (A-B) of 0.50 mbpd, reaching 30.76 mbpd. OPEC crude oil production fell by 0.23 mbpd to 30.88 mbpd, resulting in a (negative) balance of -0.73 mbpd (OPEC Report, 2006).

Table 3.7 Supply and demand balance, 2004-06, mbpd

	2004	2005	2006	Growth 05/06
World oil demand (A)	82.26	83.35	84.32	0.97
Non-OPEC supply (B)	53.00	53.08	53.55	0.47
Difference (A-B)	29.26	30.26	30.76	0.50
OPEC crude oil production	30.02	31.08	30.88	-0.23
Balance (Stock change and miscellaneous)	0.77	0.84	0.11	-0.73

Sources: OPEC Annual Report, 2006

3.4.5.2 Dynamics within OPEC

OPEC countries face significant challenges and these give rise to tensions within the organization (van der Linden, 2004). However, while OPEC governments are trying to implement economic reforms, their dependence on oil is generally growing; this in turn can lead to policy development that is driven by a focus on shorter-term political and economic benefits. Saudi Arabia continues to play a central role within OPEC and in balancing the world oil market, in part because of the size of its production and in part because of its spare capacity. Moreover, it continues to be the only country (besides Iraq) with significant spare capacity for the foreseeable future. While OPEC generally aims to negotiate production limits and thus price controls, in practice Saudi Arabia takes up the slack through accommodations in its own production limits when other countries exceed designated limits. The ability to do this gives Saudi Arabia a powerful position within OPEC.

In the face of the limitations in knowledge and capacity of poorer OPEC countries, Saudi Arabia provides a strong voice for the organization as a whole. This may, however, change as energy resources in other OPEC countries become depleted, or if they are able to increase their knowledge of their own vulnerability to climate change. In such circumstances, some countries may feel that their interests are not fully served by the current OPEC line.

Many internal problems, as well as many organizational responses to external problems, are associated with OPEC's structure and governance. The right of member countries to opt out of OPEC-prescribed production quotas on the grounds of national interest is the source of many of the problems experienced by the organization.

3.4.5.3 Saudi Aramco and the WTO

Saudi Aramco has supported MINIPET on energy issues pertaining to the Kingdom's accession to the WTO, which has wide implications for the company during the business plan period. Major items include dual pricing of NGLs and Aramco's designation as a State Trading Enterprise (STE). Currently, domestic prices for NGLs are lower than international ones. Thus, the European Union considers the Saudi

pricing policy an export subsidy that would give unfair advantage to its petrochemical industry. Saudi Arabia argues that this pricing is a comparative advantage and provides the foundation for the kingdom's efforts to grow and diversify its economy. The second issue is that the US has requested that Saudi Aramco be classified as an STE under WTO rules. This classification will require that the company disclose commercial information and contracting practices that are currently considered confidential. However, the Kingdom's position is that Saudi Aramco conducts its business on a commercial basis and should be considered an SOE rather than an STE. On both issues, increased efforts by the company and specifically by Corporate Planning are desirable to address the implications of WTO accession.

3.4.5.4 International Competition

In 2006, PIW ranked Saudi Aramco as the world's number one oil company, for the eighteenth consecutive year. Table 3.8 ranks firms in terms of six criteria that allow private and state-owned energy companies to be compared. These include reserve size, oil and natural gas output, level of refining capacity and petroleum product sales volumes. Other measures are also considered, including revenues, net income, asset value and number of employees. According to PIW, Aramco is the leading exporter of crude oil and NGLs, is fourth in the gas reserves it manages, seventh in gas output, ninth in petroleum product sales and ninth in refining capacity.

Table 3.8 Ranking of top ten oil companies (2006)

Rank	Company	Country	Ownership
1	Saudi Aramco	Saudi Arabia*	State
2	Exxon Mobil	US	Private
3	NIOC	Iran*	State
4	PDV	Venezuela*	State
5	BP	UK	Private
6	Royal Dutch Shell	UK/Netherlands	Private
7	PetroChina (CNPC)	China	90% State
8	Chevron	US	Private
9	Total	France	Private
10	Pemex	Mexico	State

*Members of OPEC
Source: Adapted from Energy Intelligence Research, 2007

According to the International Energy Agency, the average world demand for oil rose by 1.0 percent to 84.5 mbpd during 2006, while the average world supply of oil increased by 0.9 percent to 85.3 mbpd. Therefore, world oil supply exceeded demand and the oil price increased markedly, according to OPEC data, to $61.05 per barrel from its average price of $50.15 in 2005, increasing by 21.7 %.

The average world demand for oil rose by 1% to 84.5 mbpd during 2006, due to an increase of 3.5 percent in the total demand of the non-OECD countries, while total demand in OECD countries decreased by .08 percent to 49.2 mbpd. Demand in North America fell by 0.8 percent to 25.3 mbpd, in the Pacific countries by 1.2 percent to 8.5 mbpd and in Western Europe by 0.6 percent to 15.4 mbpd. The average demand in non-OECD countries rose by 3.5 percent to 35.3 mbpd in 2006, due to a rise in demand in China of 7.5 percent to 7.2 mbpd, in the Middle East by 6.6 percent to 6.5 mbpd, in South America by 2% to 5.2 mbpd, in other Asian countries (excluding China, Japan and South Korea) by 1.1 percent to 8.9 mbpd and in the former Soviet Union by 5.3% to 4 mbpd. Demand remained unchanged in Eastern Europe at 0.7 mbpd and in Africa at 2.9 mbpd. (See Figure 3.6 and Table 3.9.)

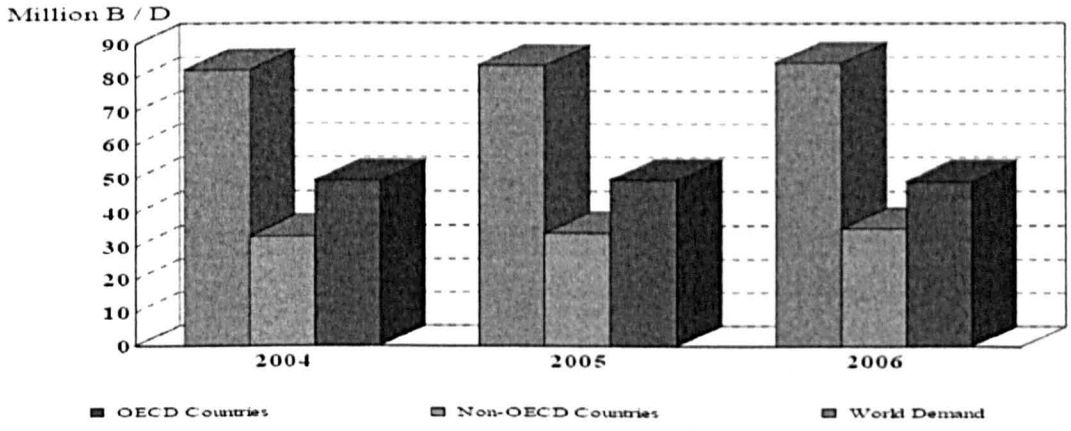


Figure 3.6 World demand for oil

Source: SAMA, 2007.

Table 3.9 Average World Demand for Crude Oil

(million barrels per day)

				2006				2007	% Change	
	2004	2005	2006	Q1	Q2	Q3	Q4	Q1	2005	2006
North America	25.4	25.5	25.3	25.1	25.5	25.5	25.3	25.6	0.4	-0.8
Western Europe	15.5	15.5	15.4	15.8	15.0	15.4	15.6	15.5	0.0	-0.6
Pacific countries	8.5	8.6	8.5	9.3	7.9	7.9	8.8	9.0	1.2	-1.2
OECD countries	**49.3**	**49.6**	**49.2**	**50.2**	**48.0**	**48.8**	**49.7**	**50.1**	**0.6**	**-0.8**
Non-OECD countries										
Former USSR	3.8	3.8	4.0	3.9	3.7	4.0	4.3	3.9	0.0	5.3
China	6.4	6.7	7.2	7.0	7.3	7.2	7.2	7.3	4.7	7.5
Eastern Europe	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.8	0.0	0.0
South America	5.0	5.1	5.2	5.1	5.2	5.3	5.2	5.2	2.0	2.0
Other Asian Countries	8.6	8.8	8.9	8.8	8.9	8.7	9.0	9.0	2.3	1.1
Middle East	5.8	6.1	6.5	6.3	6.4	6.7	6.4	6.6	5.2	6.6
African Countries	2.8	2.9	2.9	3.0	3.0	2.9	3.0	3.0	3.6	0.0
Total Non-OECD	**33.1**	**34.1**	**35.3**	**34.8**	**35.3**	**35.3**	**35.8**	**35.8**	**3.0**	**3.5**
Total World Demand	**82.4**	**83.7**	**84.5**	**85.0**	**83.3**	**84.1**	**85.5**	**85.9**	**1.6**	**1.0**

Source: Saudi Arabian Monetary Agency, 2007

Saudi Arabia has 25% of the world's known oil reserves, estimated at 259.9 billion barrels. It also owns 248.5 trillion cubic feet of gas reserves. It supplies more than 10 percent of global oil demand and produces 12.5% of total world production. Saudi Arabia continues its efforts, within OPEC, to maintain equilibrium in the oil market for the benefit of both producers and consumers and for the enhancement of world economic growth. Figure 3.7 shows the world crude oil production figures.

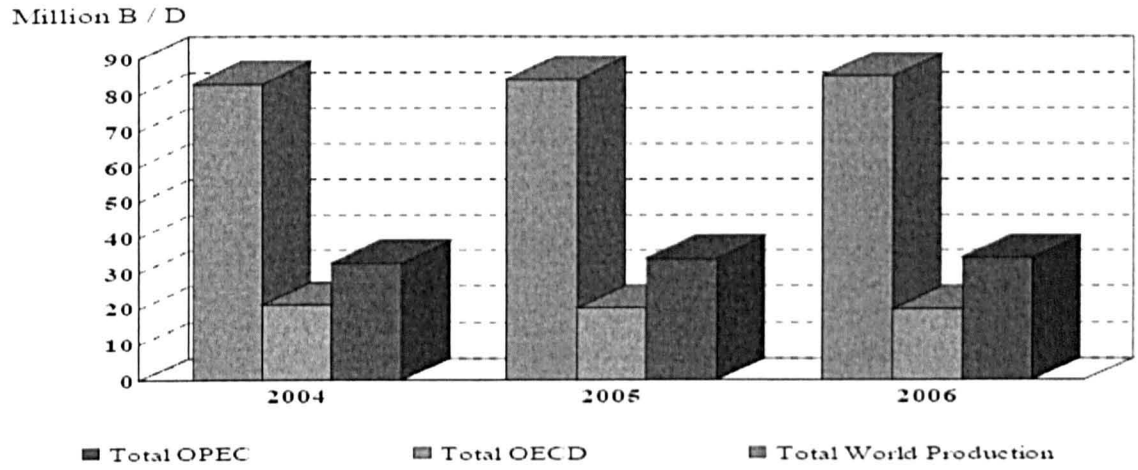


Figure 3.7 World crude oil production

Source: SAMA, 2007

3.4.5.5 Saudi Aramco as a National Oil Company

According to Al-Naimi[21] (2004),

> *"Besides managing and developing the hydrocarbon resources of their countries to achieve the development objectives, they (NOCs) are charged with the execution of government energy policies and the contribution to technology assimilation and development of technical skills in that sector. ...Independent, efficient, accountable and commercially driven national oil companies are prerequisites to achieve such objectives."*

He further stated that corporate efficiency is essential in a successful national oil company and that Saudi Aramco strives towards enhancing efficiency in all its operations, "whether in training and employment, procurement [or] field and plant operations". It also seeks "the introduction and assimilation of new technologies" aimed at cost containment and productivity enhancement. The minister noted that an NOC needs to be able to "retain net cash flow adequate to meet current and near-term obligations and plan over a reasonable time frame" to be able to maintain commercial focus, adding that "the objectives of the state are better served if the national oil company is commercially structured and run". Within this corporate structure, Saudi Aramco focuses on several goals, according to Al-Naimi:

[21] CEO of Saudi Aramco between 1988 and 1996, and now Petroleum Minister, speaking at an OPEC siminar.

1. To carry out the objectives set by the shareholder to keep at all times an excess production capacity of 1.5 to 2 mbpd, realizing that this requires technical capabilities, continued market monitoring and careful planning. The unique position of Saudi Arabia and consequently its NOC in the market as the largest producer and supplier of oil to the world necessitates such a market-balancing role.
2. To develop the hydrocarbon resources of the Kingdom so as to contribute to the development objectives of diversifying the economy and developing human resources. The efficient extraction, production and marketing of oil provide the revenues and foreign exchange needed for the non-oil sector to grow and the economy to be more diversified. Another contribution to the diversification of the economy is made by the provision of energy and feedstock to industry (especially petrochemicals) to utilize the Kingdom's comparative advantage and increase the contribution of the manufacturing sector to GDP. Saudi Aramco has been in the forefront of this effort through the construction of the Master Gas System and the increase in gas reserves, production and processing capacity.
3. To enhance the role of oil in the global energy mix. Environmental and energy security concerns have channelled technologies and research towards alternative fuels, especially fuel cells, where research and investment pose long-term challenges to the oil industry in general, including Aramco.

The challenge for Saudi Aramco here is how to mobilize its own and cross-industry resources to promote the use of oil and gas. Carbon sequestration and capture technologies as well as those that ensure a role for these fuels in hydrogen generation are emphasized in the R&D programmes of the company and in its collaborative research with other oil companies and research institutions.

Saudi Arabia continues to seek to maintain its international stature through its oil policies, which are currently designed to sustain its position as the world's most important supplier. This status gives the Kingdom unique influence on the international stage that would be hard to replicate otherwise. Saudi Arabia remains uniquely positioned to provide incremental oil supplies during times of major

emergency, accident or disruption. However, Saudi Aramco does not have a direct voice in the decision as to what international oil policy goals should be. Its power is limited to domestic political features such as lobbying behind the scenes.

3.5 Performance measurement systems in Saudi Aramco

> *"Revenue from oil alone will not be enough to sustain the current Saudi standard of living"* (Manager in Saudi Aramco).

The fact stated above puts the company under pressure from the Government, which requires that it should operate more profitably and contribute to the development of the local economy. To meet these requirements, Saudi Aramco has developed six strategic imperatives:

- Establish natural business structure and achieve best-in-class performance.
- Optimize business and services portfolios.
- Maximize revenues from oil growth.
- Protect the oil market through active promotion and developing technology.
- Leverage oil and gas resources to expand the economy.
- Prepare the Saudi Aramco workforce for the future.

Finance has developed 10 key initiatives to align the organisation with these corporate strategic imperatives, as shown in Table 3.10.

Table 3.10 Key Finance Initiatives

Corporate strategic imperatives	Finance Initiatives
(1) Transform corporate performance	➢ Streamline key finance processes ➢ Encourage & support innovation ➢ Streamline Aramco planning activities ➢ Leverage IT / SAP
(2) Optimize the corporate portfolio	➢ Establish key finance performance indicators ➢ Enhance corporate financial performance metrics ➢ Align organisational structure
(3) Maximize revenue by capturing oil growth opportunities	
(4) Protect the future market for oil	
(5) Leverage oil & gas resources to expand the kingdom's economy	
(6) Prepare Saudi Aramco's workforce for the future.	➢ Develop a comprehensive human resources strategy ➢ Effective implementation of the performance management process ➢ Improve transparency in personal actions.

Sources: Saudi Aramco Business plan (2006-2010).

In addition to these ten initiatives, a Saudi Aramco team is studying opportunities and best practices associated with providing financial analysis, business insight and management reporting capabilities. This effort will directly support those business lines that are tasked with making critical decisions in pursuit of corporate strategic imperatives 3, 4 and 5. These have been communicated to all finance employees and organised for implementation through project teams. Champions and teams leaders have been assigned.

During the business plan, Saudi Aramco will implement appropriate measurement systems, including the BSC, to track performance against key performance indicators (KPIs) at the corporate and business levels. Greater cost transparency from full cost reporting and cost databases will control the growth in costs, during a period of higher expenditure (Business plan, 2006-2010). Internal KPIs and initiatives in Saudi Aramco will be tracked using the SAP Strategic Enterprise Management System and the BSC concept. The system is currently in use as a management tool to direct terminal resources towards maximum performance. The company will continue initiatives to develop KPIs and evaluate the potential role of Business Units. The

deployment of KPIs will further strengthen performance management, accountability, strategic decision making and transparency.

Each business has developed its own strategies to address its unique challenges, while directly supporting the company in following its corporate strategic direction and steadily implementing the recommendations of the corporate strategic imperative teams. Corporate strategic imperatives and direction are set and driven by senior corporate managers working closely with CEOs and CFOs of operating companies or divisions. Strategies and objectives developed within organizations support the corporate strategic imperatives. Each financial leader described highly disciplined work environments in which rigorous management attention was devoted to:

- Defining and communicating clear strategic objectives
- Measuring performance
- Enforcing accountability
- Improving profitability
- Increasing shareholder value consistently across the company.

Organizational strategies are aligned with corporate strategic imperatives through twelve strategic objectives, as shown in the Finance Strategy Map (Figure 3.8). Strategies focus on implementing best practices in financial management, risk assessment and mitigation, while enhancing a proven system of internal controls. To add value and promote performance management, the business line provides financial leadership throughout the company.

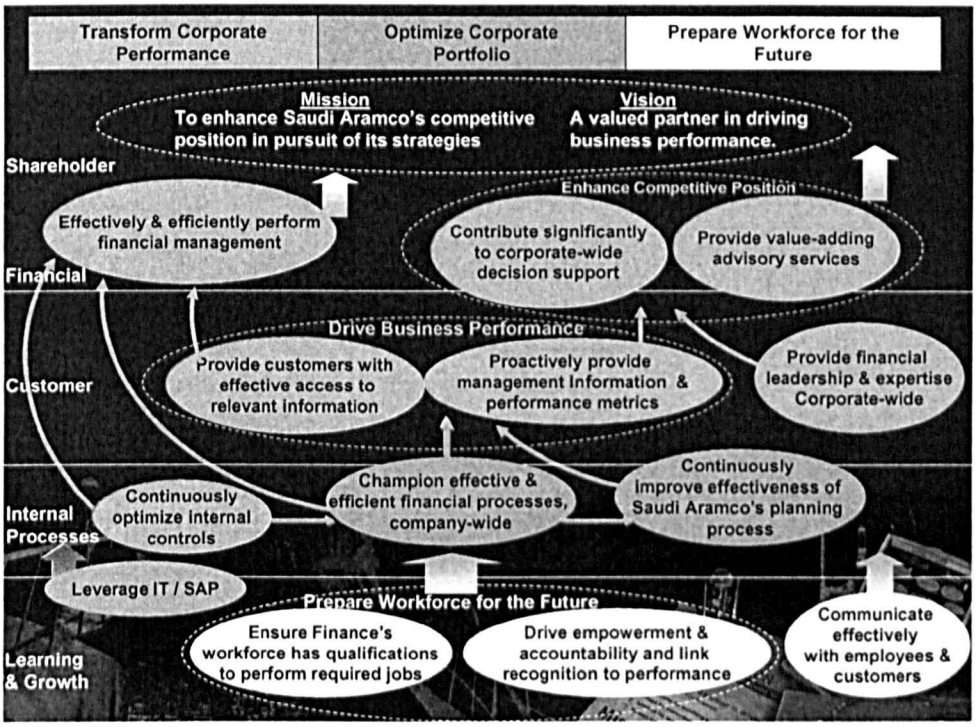


Figure 3.8 Strategy Map

In recent years, significant investments have been made in technology to improve the efficiency and reliability of transaction processing. Efforts are being directed toward streamlining processes and enhancing employee competence. There is increased emphasis on value-adding advisory services and decision support.

Table 3.11 Strategic Objectives and Associated KPIs

Strategic Objectives	KPI	Reporting Themes
- Effectively & efficiently perform financial management & corporate governance	- To be developed	- Asset and portfolio management
- Provide value-adding advisory and decision support services. - Provide financial leadership and expertise, company-wide - Provide customers with effective access to relevant information	- Finance FTEs in planning & advisory roles - Customer satisfaction index - % non-finance positions staffed with finance employees.	- Advisory services
- Proactively provide management information & performance metrics.	- Customer satisfaction	- Performance management
- Continuously optimize internal control.	- % controls subjected to cost/benefit analysis	- Internal controls and risk management
- Leverage information technology/SAP	- % approvals automated through automated approval engine - IT spending per desktop - Telecommunication spending per network connection - Customer satisfaction - SAP & email availability - Email utilization	- Technology management
- Champion effective and efficient financial process - Continuously improve effectiveness of Saudi Aramco's planning process.	- % accepted transformation recommendations - Cycle time - FTE transaction index - Cost per transaction - % operating plan initiative completed - Customer satisfaction index - % electronic access	- Process improvement
- Ensure finance workforce has qualifications to perform required jobs. - Drive empowerment and accountability and link recognition to performance. - Communicate effectively with employees and customers.	- % Saudis meeting job requirements - % eligibility for specialist programmes - % certified professionals - % business goals completed - Performance awards granted and announced - Employee and customer surveys	- Talent development

Source: Saudi Aramco, 2007

The BSC is the framework to ensure alignment of strategies and monitor progress of long-term initiatives. KPIs have been developed or are in process of being developed for each objective. The objectives are grouped into seven broad themes which form the structure of this operating plan, as shown in Table 3.11.

3.6 Summary

This chapter has discussed in detail the history, development, objectives, organizational structure and operations of Saudi Aramco (domestic and international). It has also placed Saudi Aramco in the context of the international oil industry and discussed its relations with OPEC and the WTO. Saudi Aramco, as the sole organization comprising the oil and gas industry of Saudi Arabia, is a key to the economic development and growth of the Kingdom. This chapter has discussed Saudi Aramco within this highly significant context.

It has also provided a brief introduction to the performance measurement system applied in Saudi Aramco and identified the ten key financial initiatives which align with its strategic imperatives. Saudi Aramco has used the balanced scorecard as a framework to ensure alignment of strategies and monitor progress on long-term initiatives. KPIs have been developed or are being developed for each objective. In Saudi Aramco's efforts to remain competitive in the future, the BSC will play a vital role in improving its operating efficiency.

The next chapter will review the literature on performance measurement systems in general, looking at the different methods that have been employed by companies across the world, with special reference to SOEs, while Chapter Five Is devoted to the BSC.

4. PERFORMANCE MEASUREMENT SYSTEMS AND THEIR INFLUENCE ON ORGANISATIONS

4.1 Introduction

In recent times, there has been increased criticism of the financial measures used in accounting systems (Emmanuel and Otley, 1995), partly focused on the historic nature of these measures, which, while disclosing a great deal about a company's past performance, say nothing about its future potential (Merchant, 1985; Chakravarthy, 1986; Schoenfeld, 1986; Dearden, 1987; AICPA, 1994; Kaplan and Norton, 1996a). Accounting figures do not highlight the elements that are instrumental in achieving good or poor future financial results. One of the drawbacks of accounting figures is that the financial ramifications of uncompleted chains of action extend beyond the time of measurement. Most of the information that is employed for planning and controlling business activities is largely provided by the management accounting function. One of the most important areas of management accounting is the performance measurement system (PMS), which plays a key role in the evaluation of the achievement of organisational objectives (Medori, 1998). There is an increased focus in the PMS literature on the design and development of such systems.

It is important to manage the performance of an organisation effectively for a number of reasons involving both internal and external factors, such as the need to remain attractive to future investment, to retain and attract more customers, to maintain competitiveness and continuous innovation in order to increase profit and share price. However, it is now widely understood that in the current dynamic international business environment traditional financial measures alone are no longer sufficient for understanding performance, as they encourage short-term planning, which leads to a lack of strategic focus and failure to provide data on quality (Kagioglou et al., 2001). Although some firms recognised the significance of non-financial performance measure many years ago (in the case of General Electric as early as the 1950s), it is

only recently, with increasing global competition and the popularity of concepts like TQM, that non-financial measures of performance are becoming more appealing to the wider business world. Since the 1980s, authors in both the professional and academic literature have increasingly recommended reliance on non-financial measures for the management and evaluation of organisations (Johnson and Kaplan, 1987; Berliner and Brimson, 1988; Nanni et al., 1988; Dixon et al., 1990; Rappaport, 1999).

This chapter begins with a review of the relevant literature from several fields of study associated with issues of performance measurement (PM). The concept of PM will then be defined and traditional financial models examined in detail. Next, different types of non-financial models will be explained. Finally, the Balanced Scorecard concept will be introduced; it will be dealt with in detail in the following chapter.

4.2 Management Accounting

The role of management accounting at a strategy level is to support the 'business model' of the organisation. This denotes how the company chooses to compete. Among the most important purposes of management accounting are to cover a wide range of financial activities such as financial planning and financial transactions, and to provide management with an evaluation of expenditure on property and people. Medori (1998) identifies the following functional areas of management accounting:

- Pricing decisions, which require information about the cost of products;
- Integration among financial accounts and management accounts: this field of integration is concerned with the valuation of stocks;
- Investment analysis, which is concerned with making investment decisions by using a number of techniques (e.g. NPV and IRR);
- Budgeting, which provides a plan for achieving organisational strategy and a mechanism for performance measurement;
- The PMS, which is used to improve process control and evaluation, and to compare the performance of different organisations, plants, departments, teams and individuals.

Of these, the role of management accounting information in performance measurement systems has become a central focus of much management accounting research. Otley (2001) suggests that "much of the thrust of the 'new' management accounting has been centrally concerned with the issues of measuring organisational performance".

The management accounting system is considered a subsystem within the control system of an organisation (Chia, 1995). Control systems have been categorised in many ways, including formal and informal (Anthony et al., 1989), administrative and social controls (Hopwood, 1976) and personal controls, result and action (Merchant, 1985). Controls are devices used by managers to ensure the alignment of behaviour and decisions with the organisation's objectives and strategies (Merchant, 1998). Merchant (1998) has identified two different functions of control systems: strategic control and management control. The former is concerned with the validity of the strategies of the firm in a dynamic environment, the latter with factors influencing the behaviour of employees.

4.2.1 Management control

According to Antony et al. (1989), management control is

> *"a tool for managers, who use it in their interaction with subordinates. It is a people-oriented process. Line managers are the focal points in management control. They make the plans for implementing strategies and attaining goals, and they are the people who must influence others and whose performance is evaluated".*

Kaplan (1983) states that the objective of the management control system is to provide information that is useful in decision making, planning, control and evaluation. According to Drury (2002), management accounting control systems are a form of result controls. These systems are largely defined in monetary terms, such as revenues, profits and ratios, and may also include non-accounting measures such as the number of customer deliveries. For him, the following steps are involved in result controls:

- Defining the performance dimensions such that they are congruent with the organisation's objectives;
- Setting performance targets to cover all aspects of performance dimensions;
- Measuring financial and non-financial performance; and
- Providing reward or punishment.

Anderson (1988) states that apart from being responsible for the setting of goals and decision-making on how these goals are to be reached, managers also play a key role in motivating employees to focus their attention on achieving them. According to Black and Porter (2000), managers use control as a process to assess whether the current operation is congruent with the organisation's objectives. From one point of view, control helps to ensure that the current operating systems meet what the organisation has set out to achieve (Lorange & Scott-Morton 1974; Wheelen & Hunger, 2000). It therefore acts as an element in the feedback loop that alerts the manager to adjust activities to meet the objectives (Schermerhorn, 1999). From another point of view, the managerial control process is seen as deciding what activities the organisation should be doing and comparing actual accomplishments with these plans.

The managerial control process thus plays a very significant role in strategic management, which involves a long-range planning and strategy development affecting current operations, which in turn determines the future success of an organisation. Thus, the management control process involves both planning and controlling (Anderson, 1988; Anthony & Govindarajan, 1995; Black & Porter, 2000; Lorange & Scott-Morton, 1974). For example, if the organisation's goal is profitability, managers need to take appropriate measures or control those measures that could possibly influence future profitability. In so doing, they are able to make adjustments to their plans before problems get out of control (Wheelen & Hunger, 2000).

As has been mentioned earlier, management control requires both planning and controlling activities. Planning is the process of setting goals and performance standards, then taking action to implement them. Control activities measure

performance against these goals and standards; then remedial actions are taken to correct any deviations if required.

Management control involves several activities, including:

1) Planning what the organisation should do,
2) Coordinating the activities of several parts of the organisation,
3) Communicating information,
4) Evaluating information,
5) Deciding on what action should be taken and
6) Motivating employees to change their behaviour (Anthony & Govindarajan, 1995).

Olson and Slater (2002) state that performance measurement is at the heart of the management control process in any organisation. As new strategic objectives are identified, the organisation may realize the need for new performance measures that encourage and monitor new actions (Dixon et al, 1990). Thus, organisations may use a broad range of performance measures to reflect the diverse nature of management decisions and efforts (Holmstrom, 1979; Banker and Datar, 1989; Feltham and Xie, 1994; Ittner and Larcker, 1998a).

4.2.2 Strategic Control

Strategy can be crudely defined as a statement of goals and plans for the entire organisation. It is a vital and important plan which reveals the direction that executive or senior managers want the organisation to take. Apart from defining the direction of the organisation, it is also concerned with issues of its strengths and weaknesses, its overall performance, competitor analysis, industry dynamics and external factors which are beyond their immediate control, such as economic crises and war (Anderson, 1988; Gray, Salter & Radehaugh, 2001; Wheelen & Hunger, 2000). Strategic control is the process of deciding on the goals and the strategies for reaching these goals while taking into consideration the capabilities, resources, structure and system of the organisation. As the strategic goals of an organisation are usually broad and long-term, setting strategic standards and measuring the strategic performance can be a difficult and challenging process (Anthony & Govindarajan, 1995). There are

many paths available to an organisation for attaining its goals. For instance, if the goal is to earn a satisfactory return on investment, it may contemplate expansion into one or more industries, enter other geographical markets, introduce a new product line or find niches within the existing product lines. Whenever there is variance between the goal and the actual results, a review of the strategy is undertaken to reconsider some of the current strategies, perhaps changing them or adopting new ones to achieve the goal (Wheelen & Hunger, 2000).

4.2.3 Distinction between Management Control and Strategic Control

The direction of strategic control is not predetermined, but changes in accordance with events in the external environment. It has to react to threats or opportunities that may originate from anywhere at any time and which may be totally unpredicted. The management control process, in contrast, takes place within a largely fixed timetable and involves the coordination of a series of steps which are aimed at achieving a given specified objective. While strategic control is concerned with deciding new strategies for management, management control is concerned with the process of deciding how to ensure that the implemented strategies will achieve the objectives and with the process by which managers influence other members of the organisation to implement its strategies (Anthony & Govindarajan, 1995, 2004). In most cases, relatively few people are involved in the process of strategic control. These are usually people at a higher management level, often assisted by a consultant. On the other hand, the management control process involves managers and their subordinates at all levels of the organisation.

It can be seen that there is a need for the establishment of coordinated strategic and management control mechanisms, which would incorporate both financial and non-financial performance indicators. These control systems should also be able to show considerable flexibility in order to deal with increasingly dynamic and competitive arenas. It has been argued that without such control systems in place, strategy implementation will not be possible. More recent performance management frameworks like the BSC can, by forming the basis of strategic control systems and providing an important link between strategy and action, enable organisations to achieve effective strategic implementation.

4.3 Business Strategy

A range of definitions of strategy, from the general to the more specific, have been provided in the literature. Porter (1980), for instance, defines competitive strategy as the search for a favourable competitive position in an industry. The aim of strategy is to establish and maintain a profitable and sustainable position against the forces that determine industrial competition. According to Porter (1985), it is possible for a business to achieve and maintain a sustainable competitive advantage by implementing one of the following strategies:

1- Differentiation strategy: Here the focus is on providing products or services that customers perceive as being different from the rest of the competition. Thus the strategy is to compete on the basis of superior quality, product flexibility, delivery or product design.

2- Cost leadership strategy: Here the organisation competes on the basis of cost by aiming to become the lowest-cost producer in its industry. The sources of this competitive advantage may arise from factors such as economies of scale in production, experience curve effect, superior technology and cost control.

3- Focused strategy: Here the organisation decides to focus on a particular segment of the market that may have special needs and characteristics and which has been neglected by the competitors. This strategy may be based upon either low cost or differentiation.

	Cost Leadership	*Differentiation*
Broad		
Narrow	**Cost Focus**	**Differentiation Focus**

Figure 4.1 Porter's Generic Strategy

Source: Porter, 1985

Miles and Snow (1978) identify four generic strategic forms of organisation depending on their propensity to change in terms of products or markets: prospectors, defenders, analyzers and reactors. Prospector organisations actively search for market opportunities and the product-market domain, seeking to benefit by launching new

products, by entering new markets and by focusing on customer satisfaction and research and development. Defenders concentrate more on stable product areas and have a limited range of products compared to their competitors, with high production volume and low diversity. Analyzers lie between the two, combining several characteristics of both prospectors and defenders. Reactors do not follow a well-defined strategy and would rather 'flow with the stream'.

4.3.1 Determinants of the Strategic Planning System

According to Delener (1999), the major concerns of strategic planning consist of a wide range of determinants, with some of the primary ones being the understanding and diagnosis of the environment, which can be described by aggregating many of the variables into sub-environments, as shown in Table 4.1.

Table 4.1 Determinants of the Strategic Planning Analysis

Area of Concern	*Description/Special Considerations*
Economic Environment	The economic environment consists of the macro- and microeconomic environments, both of which affect global marketing decisions. An analysis is required to determine if it is worthwhile seeking entry into a foreign market. A strategist would consider data such as GNP, total personal income, per capita income, disposable income, discretionary income, distribution of wealth, availability of consumer credit, availability of capital, and rate of savings.
Social Environment	Consumers' actions are shaped by their attitudes, lifestyles, and behaviour patterns as they stem from their social environment. Thus, the products/services that they buy, the attributes that they value and the principles they accept are all social-cultural-oriented choices. Furthermore, attitudes toward family, education, health, recreation, and other institutions affect behaviour in the marketplace.
Political and Legal Environment	International marketers must carefully examine the political situation and legal system of a country before deciding to invest there.
Human and Universal Environment	Culture refers to common values, beliefs and customs shared by the majority of the society. Cultural values have a profound effect on people's lifestyle and behaviour patterns, and are reflected in the marketplace. The study of culture consists of: a. material culture, the means and artefacts people use for livelihood; b. social interactions between individuals and groups in formal and informal situations;

	c. belief systems; d. aesthetics—art, drama, music, and folklore; e. language—spoken/written words, symbols and physical expression that people use to communicate; f. prejudices; and g. ethics and mores. It is imperative that marketing strategists take into account all aspects of the culture of the prospective market. The marketing strategist must have a grasp of the culture of the potential consumers in order to determine where the product fits in and how to make the best use of all of the various marketing tools.
Technological Environment	Today's business environment presents new challenges to applying information technology effectively. Cultural factors can govern attitudes toward technology and even the success of the application. Companies must learn to master technology so they can take advantage of new opportunities for new applications. Furthermore, companies must understand the role of technology in competitive strategy in order to obtain the maximum benefits from its adoption. According to several researchers, a firm's technology strategy is viewed as having an impact on each of the following four levels of competitive units: 1. the value activities within the firm; 2. the firm's relative level of core competencies; 3. the competitive position of a firm in an industry; and 4. the firm's key factors for success.
Marketing Environment	1. the economic environment, focusing on variables dealing with wealth, purchasing power, savings, and consumption; 2. the social environment, including demographic and cultural variables; 3. the political environment, affecting companies with laws and policies and providing both opportunities and threats; 4. the human and universal environment, including belief systems and aesthetics; the technological environment, comprised of the effect of technology and science in product and process innovation; and 5. the marketing environment, emphasizing the competitive aspects of that environment.

Source: Delener (1999) pp. 136, 137, 138 & 145.

4.3.2 The Relationship between Strategy and Measurement

Research suggests not only relationships between environment and strategy, and between strategy and performance, but also that performance measures can—and perhaps should—be linked to strategy (Govindarajan and Gupta, 1985; Abernethy and Guthrie, 1994; Ittner et al., 2003). Business strategy has been recognized as an important variable in the literature (Chenhall, 2003). More specifically, accounting control systems should be designed to suit the business strategy of the organisation (Otley, 1980). The literature on management accounting suggests that the business

unit strategy dictates the choice of performance measures (Abernethy and Lillis, 1995) and that the nature of the PM system differs with the specific strategy selected (Cauvin and Bescos, 2002).

Using the Miles and Snow typology, Simons (1987) conducted a study to examine the relationship between business strategy and accounting control systems. He came to the conclusion that defenders largely depend on formal accounting procedures, especially those directed at cost control, while prospectors focused on fostering individual creativity and innovation. The results indicate that high performing prospectors pay greater attention to data forecasting in control systems, setting tight budget goals and monitoring outputs, and that they use their financial controls more extensively than defenders. Defenders, on the other hand, seem to use their control systems less extensively and also tend to have little change in their control systems. High performing defenders also award bonuses for the achievement of budget targets.

These results seem to contradict the propositions of Miles and Snow (1978), who argue that defenders emphasise controls mainly on cost, whereas prospectors use performance measure more subjectively. Ittner et al. (1997) found the relative weight placed on non-financial performance measures to be greater in organisations following a prospector strategy than in those following a defender strategy. Morisette (1998), on the other hand, failed to find any relationship between financial and non-financial information and the strategy of the business. Guilding (1999) adds evidence to suggest that strategy is an important determinant of control systems and performance measurement. In his study, he found that prospector organisations and those following a build strategy make greater use of competitor assessment systems and perceive these systems to be more useful than either defender organisations or those following a harvest strategy. In Anderson and Lanen's (1999) study of the evolution of management accounting practices in India, it was found that prospectors focused more than defenders on performance measures such as customer satisfaction, market share and competitors' performance.

Table 4.2 Generic strategies and management accounting

	Product differentiation	*Cost leadership*
Role of standard costs in assessing performance	Not very important	Very important
Importance of such concepts as flexible budgeting for manufacturing cost control	Moderate to low	High to very high
Perceived importance of meeting budgets	Moderate to low	High to very high
Importance of marketing cost analysis	Critical to success	Often not done at all formally
Importance of product cost as an input to pricing decision	Low	High
Importance of competitor cost analysis	**Low**	**High**

Source: Shank, 1989, p. 55.

From the point of view of Porter's classification, Shank (1989) argues that many management techniques and management accounting practices may provide benefits to organisations following either product differentiation or low cost strategies. However, the choice of a particular management accounting practice may depend on the managerial mindsets underlying differentiation or low cost. He also concludes that traditional performance measures fail in the assessment of how the production process supports a variety of customer-focused strategies for organisations following a differentiation strategy. These perspectives are illustrated in Table 4.2.

4.4 Motivation for Establishing State-Owned Enterprises

As this study deals with the implementation of BSC in Saudi Aramco, which is a state-owned enterprise, this section discusses the specific case of SOEs and their performance.

In developed countries, many of the state-owned enterprises that were privatised in the 1980s and 1990s had been privately owned until the Second World War. In the 1950s, the UK Labour government was keen to enact a programme of nationalisation in order to halt private entrepreneurs (Chapman, 1990). The rationale for this was that nationalisation, it was believed, would be more efficient and economical, affording general economic and social benefits such as an improved quality of service, lower prices and better job security (Her Majesty's Treasury, 1989).

The motives for nationalisation differed between developed and developing countries. Whereas in the 1950s and 1960s the rationale for developed countries to create SOEs was to promote high-technology industries and develop certain regions of the country, the developing countries adopted nationalisation mainly in import-substituting industries, to accelerate the rate of growth of their economies and gain control of major industrial sectors (Aharoni, 1986). Thus, the steady growth in the number of SOEs resulted from a number of factors; it was a response not only to political ideologies that favoured them but also to a variety of specific economic needs or problems, including aiding economic development in areas where there was no incentive for private entrepreneurs to make investments, capturing revenue from foreign-controlled companies, rescuing failing private enterprises, enhancing political or economic control by acting as a means of counterbalancing the economic power of private business groups or of political power blocks, and accomplishing social goals (Belkaoui, 1994). Governments, for their part, gave a number of reasons to support their policy of creating SOEs, including the correction of perceived market failures, the raising of revenues, increasing the general level of employment, promoting regional development, redistribution of income, encouragement (or discouragement) of a particular national group, reducing dependence on foreign companies, controlling key industrial sectors in order to give direction to general development, and as channels for development aid (Shirley, 1983).

According to Gillis (1980), SOEs are established in developing countries for economic and/or socio-political reasons. The economic motivations are generally the need to create and secure employment, investing national savings in profitable ventures and undertaking capital-intensive projects in cases where a natural monopoly exists. The socio-political motives, on the other hand, are connected with the 'commanding heights' argument, according to which developing countries should control key industries, with decolonisation efforts, with the redistribution of income, rectifying the imbalance in regional growth and reducing unemployment.

Pryor (1976) lists the following motives for the creation of SOEs:

1. Power and autonomy. Some industries, like petroleum and airlines, are more likely to be nationalised because in private hands, the economic power they

represent would be sufficiently great to compromise the independence of the political system.

2. Large unearned income[22]. This occurs in some mining as well as in natural monopolies.
3. Economies of scale. One appearance of economies of scale is the existence of natural monopoly industries, where optimal scale enterprises produce a significant share of total industrial production.
4. Externalities. Examples of negative externalities leading to nationalisation occur in industries in which pollution or destruction of collective resources cannot be controlled without government ownership, but positive externalities leading to nationalisation occur in education.
5. Public purchases. Examples include weapons production and health services.

4.4.1 Factors Affecting SOEs' Performance

The 1990s saw a rapid shift from SOEs back to private ownership of industries. The literature has tried to locate the reasons for this sudden and widespread shift. Harris (2003), for example, argues that the inefficiency that plagued nationalised enterprises, problems of overstaffing and the failure to expand operations to meet increasing demand were some of the reasons for this shift. Pirie (1989) lists 10 factors that caused the SOEs to achieve the very reverse of what they were initially established for: production costs, efficiency, labour costs, capital cost, consumer input, innovation and flexibility, decision-making, condition of equipment, interruption of service and responsiveness to cost control. Belkaoui (1994) suggests that the reasons for the inefficient use of resources in developing countries were that these resources were used in making the wrong products or were poorly utilised due to "inadequate education, poor health, traditions, institutions, and habitual ways of producing, custom or cultural attitudes".

[22] 'Unearned income' refers to income that is not a wage. It includes interest, dividends or capital gains realized from investments, rent from land or property ownership, and any other income that does not derive from work.

In their work on SOEs in developing countries, Shirley and Nellis (1991) observe that their weaknesses stemmed from mismanagement, inadequate capital structure, lack of managerial incentives and accountability, lack of incentives linked to performance, inadequate measures for judging performance and insufficient compensation and training. The reasons for poor performance were thus related to the non-commercial objectives of these SOEs, which meant huge budget deficits, overstaffing, pricing goods at below market and sometimes below cost, and locating plants in economically unviable regions. Jackson and Palmer (1992) also list ill-defined tasks and responsibilities, unclear objectives, undeveloped performance measures and confused lines of accountability as the basic problems facing public sector organisations.

In terms of measuring their performance, Shirley (1983) notes that the different classifications of SOEs and the difficulty in collecting relevant data hindered accurate assessment of return on capital (ROC) and thus the drawing of general conclusions about financial performance. Shirley (1983) recommends a system that holds management accountable for the results and gives it the autonomy to achieve them; government is kept at arm's length, its role being limited to assessing systems in terms of priorities and constraints. Singh (2000) recommends developing a suitable system of financial and non-financial performance indicators and realistic cost systems, stopping state intervention, just beginning the planning aspect by introducing the concepts of economy, effectiveness and efficiency, conducting a performance audit, enhancing managerial and financial autonomy, and basing accountability on the principle that the greater the autonomy, the greater the accountability.

Shirley and Nellis (1991) suggest that the corporate plan should be such that it analyses the business environment, makes predictions and assessments of the likely direction the environment will take, draws out goals and strategies for the future, makes use of targets and benchmarks for monitoring achievements and has an investment programme. They also recognise a number of obstacles to effective corporate planning, which include market protection, price controls and the ability to compensate for past mistakes through readily available subsidies and loans. There is also a lack of commitment on the part of managers and directors to a long-term vision, due to the practice of frequent rotation of personnel.

4.4.2 Accountability vs. Autonomy

Jackson (1982, p.220) explains accountability as meaning:

> *"Explaining or justifying what has been done, what is currently being done, and what is planned. Accountability arises from a set of established procedures and relationships of varying formality. Thus one party is accountable to another in the sense that one of the parties has the right to call upon the other to give an account of his activities. Accountability involves, therefore, the giving of information."*

Kaler (2002) considers accountability to be a sub-concept of responsibility, which in turn has two dimensions: 'duties owed' and 'causal' responsibilities. Accountability has connotations of blame and punishment and thus belongs to the dimension of causal responsibility. Indeed, "to be 'accountable' is to be 'answerable'; what this suggests is that accountability has to be understood as the providing of answers, as reporting or, more obviously, 'giving an account' about how well or badly responsibility has been carried out" (Kaler, 2002).

Sinclair (1995) classifies accountability as managerial (or financial), public, political, professional and personal, arguing that the meaning and usage of the term depends on the context of the field within which it is used. Hence, for example, when auditors discuss accountability, they mean to use it as if it is a financial or numerical matter, when political scientists use it they take it to refer to a political imperative, while philosophers take accountability to be a part of ethical discourse. For Glynn (1985), public sector accountability means that "those who are charged with drafting and/or carrying out policy should be obliged to give an explanation of their actions to their electors". Heald (1984) deems political accountability to include constitutional, decentralised and consultative subtypes, managerial accountability to include commercial, resource and professional accountability and legal accountability to include judicial, quasi-judicial and procedural accountability. He argues that "no single type of accountability will be sufficient on its own".

Robinson (1971) categorises managerial accountability into three subtypes: fiscal accountability, which verifies whether money has been spent as agreed or according

to a projected budget; process accountability, which monitors the deployment of processes as planned; and programme accountability, which measures whether outcomes or defined results have been achieved. Finally, Day and Klein (1987) propose a simple hierarchical model of accountability dimensions:

> *"At the top is political accountability which sets the policy objectives and generates the criteria used in the neutral technical process of managerial accountability, running from the relatively simple fiscal/regularity accountability to the more complex programme/effectiveness accountability, from inputs to outcomes."*

For them, the dimensions of accountability are to be understood conventionally and conceptually (Table 4.3).

Table 4.3 Dimensions of Managerial Accountability

Dimension	*Conventionally*	*Conceptually*
Fiscal/regulation	Making sure that money has been spent as agreed, according to the appropriate rules; legal accountability can be seen as a counterpart to this, insofar as it is concerned to make sure that the procedures and rules of decision-making have been observed.	Checking that the appropriate inputs, whether of resources or administration, have gone into the policy or service-delivery machine.
Process/efficiency	Making sure that given course of action has been carried out, and that value for money has been achieved in the use of resources.	Checking that the appropriate outputs have been produced and that the relation between inputs and outputs (efficiency) is the most favourable possible.
Programme/ effectiveness	Making sure that a given course of action or investment of resources has achieved its intended results.	Checking whether the intended outcomes have been produced, whether the desired impact has been made.

Source: Day and Klein (1987)

Heald (1984) argues that SOEs should be commercially accountable and their regulation be based on their commercial performance only when they are financed by user charges (as opposed to budgetary appropriations). Their autonomy should imply a freedom to make commercial decisions in response to particular market pressures and thus should be at arm's length from governmental controls. Bovens (1998)

suggests that people at the higher management level in large organisations are accountable for how the organisation conducts itself, and every member of the organisation is equally accountable at a personal level for the organisation's conduct. On the other hand, Aharoni (1986, p.249) insists that managers of SOEs have to be accountable for their decisions:

> *"Accountability means a responsibility or liability to reveal, explain and justify what one does – to account for one's action, to report on the actions and the results arising from the exercise of authority. Since managers of SOEs have the authority to exercise discretion over the use of public funds and to exercise economic power associated with diverse social consequences, they must be accountable for their decisions to the representatives of the public."*

However, Pallot (1990) maintains that it is unfair to hold managers accountable for the efficient running of the organisation if they do not have autonomy of decision-making regarding disposing of assets or replacing them. Similarly, Shirley and Nellis (1991, p.26) state that "accountability is meaningless without autonomy, for how can owners of an enterprise hold managers responsible for performance unless the managers have the freedom to decide?"

The main purpose of autonomy is to enable improvement in performance by allowing organisations to take decisions which are appropriate to their own specific context and situation, by delegating decision-making authority to those who possess greater knowledge of the impact of such decisions, by motivating staff through giving them enough discretion and not stifling them with strict and rigid rules and regulations (OECD, 1994, pp.59-63). Autonomy takes two forms: managerial or operational autonomy and strategic autonomy.

- Managerial autonomy means giving autonomous units the necessary freedom to devise the best ways of organising their resources and hence to generate productivity gains. It covers the management of financial and human resources, and the internal organisation and location of units, including carrying over funds from one year to the next, the possibility of converting a portion of funds for running costs into capital and vice versa, the possibility of retaining within the

units some or all of the savings made, the capacity to generate and retain income, and flexibility in staff management, particularly the capacity to change organisational structure or the freedom to recruit certain staff under certain conditions.

- Strategic autonomy means being able to give an opinion on aims and objectives and also suggesting how they can be translated into targets (OECD, 1994, pp.61-62).

Ahroni et al. (1987) argue that improving performance does not automatically result in the desired autonomy, as there are certain strategic decisions which may reduce autonomy. However, in general there is a positive correlation between the SOE's performance and its autonomy (Ahroni, 1986). Ayub and Hegstad (1986) list three main factors that separate successful SOEs from unsuccessful ones: the competitive environments in which these SOEs operate the degree of financial autonomy and accountability they operate under, and the manner in which managerial autonomy and accountability are operationalised and ensured. They also refer to several factors that can help enhance the performance of SOEs, such as using capital markets as the primary source of funding, reducing subsidies, setting financial as well as non-financial targets which are measurable, enhancing transparency of operations to ensure better financial accountability, using generally accepted accounting standards, ensuring the publication of financial statements which have been audited independently, setting up a simple and effective financial performance system and enhancing financial and managerial autonomy.

Grum and Goldberg (1998, p.304) point out that although many governments proclaim that they want their SOEs to operate on a free-market principle, in practice quite the opposite happens, probably because the government's objectives are other than value-maximisation and they may want to use the SOE as an instrument of policy; thus "managers who do not heed the suggestions of the relevant ministry official are often criticised or even fired. There are little or no incentives for managers or employees to take even prudent risks because they will not be rewarded if the company's performance increases or may be fired if it deteriorates". Ahroni (1986) asserts that if government control of the parliament and democratic institutions is less

powerful, a comprehensive state audit will be ineffective. Moreover, Ramamurti (1991, p.207) explains that government control over SOEs often means following proper procedures, rather than accomplishing goals efficiently and creatively, which may result in:

- Managerial effort being often directed at finding ways to avoid government control, which in turn magnifies mutual suspicion between managers and government controllers;
- Demoralising managers and reducing operational efficiency;
- Frequent intervention;
- Managers not being held accountable for results, since outsiders make so many internal decisions;
- Controllers and managers being so distracted by minor issues that fundamental questions about objectives and strategy often remain unaddressed.

Referring to Nellis's (1991) description of the position of Soviet SOEs in the mid-1980s, Ernst and Young (1994) comment that despite the reforms carried out since 1985, which had resulted in some benefits, the overall situation in Soviet and other developing countries' SOEs had not changed significantly:

> *"The firms were concerned first with meeting the physical targets of the plan and second, often a distant second, with the quality of the item produced. Questions of design, cost minimisation and the division of retained earnings between rewards for the workers/managers and reserves for expansion of the firm were not in the control of enterprise management (and the notion not even considered)...the enterprises generally operated at a low level of efficiency, produced poor quality goods, and mostly failed to maintain high technological standards"* (Nellis, 1991, pp.2-3).

In Greece, Lioukas et al. (1993) found that government control was directly related to SOEs' dependence on the state for resources, their size and "political visibility", i.e. the degree of social orientation of their product/market strategy; and indirectly related to performance, the internationalisation of their operations and unpredictable demand.

To reconcile the two conflicting principles of business autonomy and accountability, Masani (1982) argues in the context of Indian SOEs that efficient control systems should be created to ensure both public accountability and business efficiency and autonomy by reducing the degree of political control and increasing the degree of business autonomy, eventually moving towards competition and privatisation. In her work on Australian SOEs, English (1989) recommends reforming the traditional accounting practices of the public sector by introducing private sector techniques, putting emphasis on the publishing of annual reports and the accompanying audit reports, accrual reports, the use of budgets in the implementation of corporate strategy and an effective information system. Further, boards of government and management should be accountable through strategic planning. Managers should be given more autonomy to make decisions on labour, resources and pricing policies and be made more accountable for the results to owners; the power of ministers to direct day-to-day activities of the SOE should be strictly limited to non-managerial aspects; and government should ensure that change does not undermine public accountability.

In this environment, measuring the performance of such organisations represents a fundamental challenge to both corporate executives and industry observers, but there are some useful techniques available for these purposes, which are discussed further below.

4.5 Performance Measurement Systems

Traditionally, PMSs have provided a means of monitoring and maintaining organisational control (Nanni et al., 1992), which is the process of ensuring that those strategies were implemented by an organisation that would result in the achievement of overall goals and objectives (Brignall and Ballantine, 1996). Performance measurement has been defined differently by various writers. For instance, Marshall et al. (1999) define PM as the development of indicators and collection of data to describe report on and analyze performance, while the US General Accounting Office (GAO) (1998) defines it as:

> *"the ongoing monitoring and reporting of program accomplishments, particularly progress towards preestablished goals. It is typically conducted by program or agency management. PMs may address the type or level of program activities conducted (process), the direct products and services delivered by a program (outputs), and/or the results of those products and services (outcomes). A program may be any activity, project, function, or policy that has an identifiable purpose or set of objectives".*

Taking a more comprehensive angle, PM is a function of the efficiency and effectiveness of actions, according to Neely et al. (1995), who propose three definitions of a PMS as follows:

1. The process of quantifying the efficiency and effectiveness of actions.
2. A metric used to quantify the efficiency and/or effectiveness of actions.
3. The set of metrics used to quantify both the efficiency and effectiveness of actions.

Kaplan and Norton (1996b) maintain that measurement is a key factor, as management is impossible without both internal and external measures, and these have a huge influence on all personnel and stakeholders. Thus, "if companies are to survive and prosper in information age competition, they must use measurement and management systems derived from their strategies and capabilities".

Behn (2003) holds that managers can use performance measures (PMs) to "evaluate, control, budget, motivate, promote, celebrate, learn and improve." He emphasises that there is no single performance measure which is capable of fulfilling all of these eight purposes. Managers must recognise those purposes which any given PM might serve and how these measurements could be effectively employed. Hacker and Brotherton (1998) argue that an effective measurement system is one that helps managers to determine whether the activities which are being carried out within a facility indeed support the achievement of objectives, thus helping the organisation to achieve its stated vision.

The information age environment has made it imperative for both manufacturing and service organisations to acquire new capabilities for competitive success. How well a company manages its intangible assets will have more bearing on its success than its physical, tangible assets (Kaplan and Norton, 1996c; Evans, 2005). Neely et al. (2004) emphasise that PMSs are an essential part of company strategy. Furthermore, executives may introduce new strategies and innovative operating processes rather than using the same short-term financial indicators they have been using for decades, like return on investment (ROI), sales growth and operating income. Effective measurement, in their opinion, must be an integral part of the management process (Vokurka, 2004; Brewer et al., 2005).

PMSs can be classified into three main categories, two of which are quantitative measures of performance. The first comprises market measures—that is, those that reflect changes in stock prices or shareholder returns—and the second comprises summary accounting-based measures, which can be defined in either residual terms (e.g. net income after taxes, operating profit, residual income, economic value-added [EVA]) or ratio terms (e.g. ROI, return on equity [ROE], return on net assets [RONA]). The third category is qualitative measures, assessing subjective areas of performance such as ethical behaviour and the satisfaction of stakeholders, customers and managers (Parnell et al., 2000). They may also include employee satisfaction, delivery performance, process improvement, measures of material and parts delivery time, throughput time, due-date performance, quality, machine flexibility and inventory levels (Hendricks et al., 1996).

4.6 Financial Measures

The quantitative performance measures are financial in nature, while qualitative ones are non-financial. In a market economy with a well functioning capital market, the corporate objective is to maximize value for shareholders, since they are the owners of the company. Market-based measures measure this value directly, whereas accounting-based measures do so indirectly through the measurement of profit and cash flow, which are the fundamental components of shareholder value.

4.6.1 Market Measures

Before proceeding, it should be mentioned that market-based measures are not valid in the case of Saudi Aramco, as it is an unlisted SOE with no share price quotation. The absence of a stock-market discipline has consequences for its managerial action. With companies exposed to the stock market, there is always a danger of takeover if performance falls below standard, and senior managers can be replaced. Thus the capital market acts as a measure of managerial performance. This is clearly not possible in the case of Saudi Aramco[23]. These measures are mentioned in this chapter to demonstrate the completeness of our understanding of performance measures, their use in practice and their influence on companies, which is absent in the case of Saudi Aramco.

Market-based measures of performance have received considerable attention in the literature (Amit and Livnat, 1988). The mass media have deemed market value added to be the most accurate means of evaluating how well a firm creates shareholder wealth (Tully, 1994). Market measures of performance are based on changes in the market value of the company or, if dividends are taken in to account, the return to shareholders. They are popular because they tend to provide direct indications of the amount of value that has been created or destroyed.

For companies that are publicly traded, market values are available on a timely and frequent basis and these data are accurate. The values can be measured precisely[24] and the values are usually objective and less susceptible to manipulation by the managers whose performances are being evaluated. They are easy to understand are cost effective, since the company does not have to spend money in making them (Merchant, 2006).

[23] It should also be noted that there are no product-market and labour-market disciplines acting in the case of Saudi Aramco. It has a monopoly in its product category in Saudi Arabia and thus no possibility of managerial control through the product market. The King has final decision-making power on all matters involving oil production, investments, external policies, including those related to OPEC, and domestic energy pricing and subsidies. Nor does the labour market work efficiently, as managers are rarely sacked for poor performance.

[24] The author considers market changes measured in other ways, such as through appraisal, to be less timely, less precise and possibly less objective.

Although market-based measures are therefore very popular, they do have some severe limitations, including a severe feasibility constraint. Only a small percentage of companies are publicly traded; market measures are hence not available for the large majority. Nor are market-based measures available for privately-held corporations or wholly owned subsidiaries or divisions, and they are not applicable to not-for-profit organisations.

Secondly, market measures present two types of controllability problems. Only a few managers at the top are likely to have any degree of influence on market measures, as they have the power to take decisions of major importance. These measures disclose very little about the performances of individuals lower in the organisational hierarchy, even those with significant general manager responsibilities. Indeed, even for the top management team, market measures may not be totally under their influence. Market prices are affected by many factors outside managers' control, such as changes in macroeconomic activity, interest rates, factor prices, exchange rates and the actions of competitors (e.g. Kim and Suh, 1993; Sloan, 1993). One way of controlling for the effects on share price beyond managerial influence is to benchmark the share price to those of other companies. If, for example, the share price increase is in the top 25% of the distribution of share price increases for companies deemed to be in the same industry class, managerial performance could be regarded as good. Another way of controlling for outside influences on share price is to combine the stock market measure with the internal accounting measures and produce an assessment of managerial influence based on both sets of information. This assumes that the two sets are not perfectly correlated, which the evidence suggests that they are not.

Another problem with market measures is that the past performance of companies is not always reflected in market values, which are actually heavily influenced by future expectations of the companies' performance (Barclay et al., 2003), so it is risky to base bonuses on expectations that might not be realized. More significant for incentive purposes are some other, larger market imperfections which are more likely to be significant in some developing countries where stocks may not be as actively traded (e.g. Islam and Watanapalachaikul, 2002). Rewarding managers based on stock-market valuation may not be the most efficient method in these countries, where many individuals contend that since regulations are not as well developed or well

enforced as those in advanced countries, managers can slant or time their disclosures to affect market valuations, and large investors have the power to manipulate the markets. The drivers of market valuations in these markets and the degree of market efficiency are the subject of much current research (Litan et al., 2003).

Another drawback of market-based performance measurement systems is that the discipline imposed on managers by the company facing product-market competition and the managers facing active labour markets may be weak. For example, there is a lack of strong evidence to suggest that the takeover market operates where very profitable firms take over very unprofitable firms; similarly, there is plenty of evidence to show that the labour market does not work, with managers who have done badly in one company moving to another with better pay and conditions. Thus, the best incentive is provided by managerial rewards aligned to shareholder rewards, in the form of shares and share options.

To summarise, market measures of performance have some important advantages. The most significant is that market-based measures generally provide high congruence with actual performance. Market measures are perhaps the best indicators of whether an entity has created or destroyed value in any given period. For publicly traded entities, market measures are also available on a timely basis, accurate (e.g. precise and objective), easy to understand and cost effective.

They also have some severe limitations, however. They are only available for publicly-traded firms and are largely beyond the control of any employees except the top few managers in the hierarchy. Even for these top managers, market measures may not be totally under their control, as they are influenced by other macroeconomic factors. It is possible to address this problem by making the market measures more reflective of the controllable elements of performance, using standard management accounting techniques such as variance analysis, flexible budgeting or relative performance evaluation procedures (Merchant, 2006).

4.6.2 Accounting-Based Measures

Traditionally, companies have used standard accounting-based measures to decide on general managers' evaluations and rewards. Accounting data such as ROI, return on assets and return on sales have been applied to numerous studies (Bromiley, 1986; Daily et al., 2002; Jacobson, 1987; Palepu, 1985). More recently a newly developed financial measure, economic value-added, has also been applied in some studies (Bacidore et al., 1997; Chen and Dodd, 1997), but it has not been used very extensively in companies, as it is deemed too complex for managers to understand and use (Ittner and Larcker, 1998a). Proponents of accounting-based measures of performance have pointed to the benefits obtained in terms of the objectivity associated with comparing the performance level of various business units along standardized lines (Sieger, 1992). However, when it comes to the valuation of intangible assets, accounting-based measures have been found wanting (Huselid, 1995). Nonetheless, accounting-based measures remain the most popular and widely accepted approach in strategy-performance studies (Geringer et al., 1989).

Murphy (1999), for example, found that 161 of his sample of 177 included at least one summary accounting measure in their annual bonus plans. Accounting-based, summary, 'bottom-line' performance measures come in two basic forms:

A. Residual measures (e.g. net income, operating profit, EBITDA, residual income);
B. Ratio measures (e.g. ROI, ROE, RONA, and risk adjusted return on capital).

These measures are usually derived from the rules set by the regulatory authorities for financial reporting purposes.

Summary accounting measures of performance, however, face two major problems. One is related to the controllability problem: accounting performance measures are affected by many of the same macroeconomic distortions as market performance measures (Oxelheim and Wihlborg, 2001). When the economy goes into recession or oil prices rise, for example, the accounting measures of performance are affected like the market measures. These macroeconomic events are beyond the control of company managers.

A second problem is that in many situations the accounting performance measures do not accurately reflect changes in value. Many factors affect accounting profits but not economic profits, and vice versa.

1. Profit measures are retrospective. Economic value is derived from expected future cash flows, and past performance is not always a reliable indicator of future performance.
2. Accounting systems are largely transactions-oriented. In the main, accounting profit is the sum of the effects of all the transactions made during a given period; changes in value that do not lead to a transaction are not recognized in income. For example, when a firm is granted a patent or regulatory approval for a new drug, there is a creation of great value, but since no transaction occurs, there is no accounting entry, and hence no effect on accounting income.
3. Accounting profit depends to a large extent on the choice of measurement method used (e.g. Brown, 2002). Often multiple measurement methods are available to record identical economic events. Fixed asset depreciation accounting options (asset lives and depreciation methods) and inventory accounting alternatives (e.g. FIFO versus LIFO) are just two examples.
4. Accounting profit is derived from measurement rules that are often conservative in principle. Most accounting regulations require slow recognition of gains and revenues but quick recognition of expenses and losses (e.g. Watts, 2003a, b). For example, accounting rules define strict criteria that must be satisfied before revenue (and the associated profit) can be recognized, while expenditures on intangible assets are generally expensed immediately and not recognized on a company's financial statements. Thus, accounting measures do not match revenues and expenses well, and this problem is particularly acute where measurement periods are shorter than the firms' investment payoff horizons.
5. Accountants may omit some economic values and value changes from their calculation of profits if they feel that these cannot be measured accurately and objectively. Investments in major categories of intangible assets, such as research in progress, human resources, information systems and customer goodwill, are expensed immediately. The omission of such intangible assets

from the balance sheet occurs even though for many companies they are much more important than the industrial era-type assets of plant, equipment and land (e.g. Lev, 2001). For many companies, tangible assets represent only a small fraction of total market value.

6. Profit disregards the cost of investments in working capital, although they tie up capital and hence have real economic costs.
7. Accounting profit does not consider risk or changes in risk. Economic value is increased when firms or entities within firms have made their cash flows more certain or less risky without having changed the pattern or timing of their expected future cash flows, but this is not reflected in accounting profits.

There will be an effect on accounting numbers and traditional financial measurement tools as businesses become knowledge-based rather than industrial organisations (De Waal 2001; Drucker 1998; Rappaport 1998). It must then be asked whether the traditional measurement tools are still adequate. Traditionally, projected financial statements have been used as the basis for judging the success of the long-term organisation plan. However, this accounting-oriented measurement method is found wanting in providing comprehensively reliable answers to such questions as whether value creation is part of the corporate plan, whether value is being created by each business unit and how each alternative strategic plan could have an effect on shareholder value (Aggarwal 2001; Rappaport 1981). Earnings per share (EPS) and related traditional measurement tools such ROI and ROE have been found wanting in terms of financial standards to evaluate corporate strategy and its performance (Rappaport 1981; Wheelen & Hunger 2000). For example, it is quite possible that the growth in EPS is due to lower rates of inflation and interest, resulting in lower capital costs, rather than related to increased shareholder value (Rappaport 1998). Also, the use of ROI and ROE is related to the short term or a single period of measurement, thus ignoring the post-planning period residual value of a business unit or corporation.

To summarise, the fundamental drawback of accounting measures of performance is in terms of the congruence criterion for evaluation. Accounting measures do not fully and correctly reflect changes in companies' economic values, particularly in the case of shorter measurement periods. They also suffer from problems related to

controllability, but these can be addressed by the same methods that can be used to adjust the market measures; e.g. through relative performance evaluation and/or variance analysis. In order to improve congruence, some consulting firms have proposed new, 'improved', summary bottom-line accounting performance measures. These include EVA (Stern Stewart & Co.), cash flow return on investment (Holt Value Associates), total business return (Boston Consulting Group), economic profit (McKinsey & Co.) and shareholder value added (LEK/Alcar). Each consultancy promotes its proprietary performance measure as reflecting more accurately the value changes than do either traditional accounting measures or the proposals of rival consultancies. For instance, the original *Fortune* article that resulted in the initial attraction towards the EVA measure claimed, "One of EVA's most powerful properties is its strong link to stock prices. The two numbers show a remarkable tendency to move up and down together" (Tully, 1993). EVA is related to the measure of residual income which, according to a study of UK firms by Stark and Thomas (1998), has a weak correlation with market value changes. However, there are a number of adjustments incorporated into EVA, most of which involve the addition of 'preferable' deviations from generally accepted accounting practices. Stern Stewart & Co. has identified over 160 adjustments that might be useful in some scenarios. Examples are the standardization of accounting policies, capitalization and amortization of investments in intangible assets, such as research and development and advertising and sales promotions, and the elimination of deferred taxes, goodwill amortization, and unusual gains and losses.

EVA addresses some of the accounting problems raised earlier, but not all of them. Its shortcomings include:

- Focus on the past. Like accounting income, EVA focuses on the past, while value changes are often largely caused by changing expectations for the future.
- Transaction orientated. EVA largely maintains a transactions orientation; gains are recognized only after the transaction occurs.
- Conservative bias. EVA touches upon, but does not provide a solution to the conservative bias of accounting measures. For instance, in the full EVA model, investments in R&D are capitalized and amortized, so if managers make a good R&D investment, increasing the firm's value, they do not have to

immediately expense its full cost; but they do have to start recognizing some of the expense and are not allowed to report the positive economic values that they have presumably created.

Recent critics have argued against putting too much reliance on these measures. The literature of the 1990s has advocated the use of a combination of both financial and non-financial performance measures. This recommendation can be attributed to two causes: the limitations of financial performance measurements and the changing bases of performance measurements. Specifically, many limitations and problems associated with traditional financial performance measurements have been identified in the literature.

4.6.3 Limitations of Financial Measurement

During the last decade, a growing body of literature has highlighted the increasing dissatisfaction with the traditional forms of PM (Brignall et al., 1991; Kaplan and Norton, 1992; Brignall and Ballantine, 1996; Ghalayini and Noble, 1996; Neely, 1999; Neely et al., 2000; Mohamed, 2003; Gumbus and Wilson; 2004; Angel and Rampersad, 2005; Karathanos and Karathanos, 2005; Wells and Weiner, 2005). Skinner (1971, cited by Neely et al., 2000) believes that

> *"a ... major cause of companies getting into trouble with manufacturing is the tendency for much management to accept simplistic notions in evaluating performance of their manufacturing facilities ... [There is a] general tendency in many companies to evaluate manufacturing primarily on the basis of cost and efficiency. There are many more criteria to judge performance...".*

Mohamed (2003) states that while PM's complete focus on financial aspects was appropriate in the industrial era, it has slowly dawned that with the emergence of the knowledge economy since the late 1980s, the management of intangible assets is more crucial for the success and failure of a business than the deployment of physical capital, which thus requires a new conceptualisation of PM (Kaplan and Norton, 1996b; Gumbus and Wilson, 2004).

Brignall and Ballantine (1996) believe that much of the criticism of traditional PM systems arises because they concentrate on financial measures and are unable to measure and monitor multiple dimensions of performance. Further, Niven (2002) explains that financial performance measures have many shortcomings and are not adequate, as they sacrifice long-term goals, tend to reinforce functional issues and are seen as not being relevant for many other levels of the organisation.

Johnson and Kaplan (1987, Preface) believe management accounting to be incapable of providing management with adequate information:

> *"In this time of rapid technological change, vigorous global and domestic competition, and enormously expanding information processing capabilities, management accounting systems are not providing useful, timely information for the process control, product costing, and performance evaluation activities of managers."*

The primary drawback of using financial measurements of performance (such as EPS and ROI), according to Eccles and Pyburn (1992), is that they are "lagging indicators" which are "the result of management action and organisational performance, and not the cause of it". Neely (1999) lists the following grounds on which the traditional financial measurements are criticised:

- They encourage a short-term view of the organisation and its growth, for example the delay of capital investment.
- They suffer from a lack of strategic focus and fail to provide data on quality, responsiveness and flexibility.
- They encourage local optimisation, for example 'manufacturing' inventory to keep people and machines busy.
- Their primary focus is on the minimisation of variances from the standard rather than continuous improvement.
- They fail to provide useful environmental data, e.g. what kind of demand exists and how competitors are performing.

Olve et al. (1999) enumerate other shortcomings of financial measures:

- The information obtained can be misleading for decision-makers.

- Such measures are out of focus with the requirements of modern organisations and strategic needs.
- They suffer from short-term thinking and sub-optimisation.
- They play only a secondary role to the requirements of financial accounting.
- The information they provide might be misleading for cost allocation and control of investments.
- The information provided to employees tends to be very abstract.
- There is insufficient focus on the business environment.

All the above drawbacks notwithstanding, financial performance still plays an important role in the new PMSs. Kaplan and Norton (1996a) state:

> *"The financial reporting process remains anchored to an accounting model developed centuries ago for an environment of arm's-length transactions between independent entities. This venerable financial accounting model is still being used by information age companies as they attempt to build internal assets and capabilities and to forge linkages and strategic alliances with external parties."*

As a result of all the drawbacks of financial-based PMSs, it was imperative that there emerge a new PMS and a new management system. It was therefore suggested that corporate reporting should look beyond financial measures to include data for longer-term, non-financial measures which indicated how key business processes were performing and that there should be better control of internal and external information (Barsky and Bremser, 1999; Carmona and Grönlund, 2003; Zelman et al., 2003; Davis and Albright, 2004; Debnath et al., 2004; Kaplan and Norton, 2004a; Lawson et al., 2004; Phillips, 2004; Valiris et al., 2005; Van Grembergen and De Haes, 2005; Wang, 2005; Wells and Weiner, 2005). This has led to the emergence of many new management systems in the last two decades. Acknowledging the importance of including non-financial performance measurements, the following section presents a brief discussion of non-financial performance measurements.

4.7 Non-Financial Performance Measurements

The shift to non-financial measures was not a criticism of financial measures as such, but a reaction to a change of question. Whereas to answer the original question, 'How am I doing against my objective?' it was reasonable to measure financial progress, when the question changed to 'What should I be doing for the future?' this was no longer appropriate, since financial PMs were essentially backward looking.

It is often argued that a drawback of accounting measures is that they induce a short-term focus (Jacobs, 1991). They are by nature backward-looking and thus do not accurately reflect the effects of employees' efforts or decisions on future corporate performance. This problem is particularly acute in situations where investments in intangible assets are important (Lev, 2001). Managers whose performance is evaluated in terms of accounting income are discouraged from making investments in intangible assets by their conservative accounting treatment.

In the new economy, where non-financial measures are more important, it is difficult to assess performance using traditional PMs. Internally, the shareholder-value creating activities have to be identified and managed. Externally, investors need to assess value creation. These internal and external requirements can be met only by making use of measures that capture and communicate activities linked to strategy and vision (Carmona and Grönlund, 2003; Zelman et al., 2003; Davis and Albright, 2004; Valiris et al., 2005; Van Grembergen De Haes, 2005; Wang, 2005; Wells and Weiner, 2005).

Mukhopadhyay (2005) considers that the PM models should be broadened to include the valuation of a company's intangible and intellectual assets, such as high-quality products and service, motivated and skilled employees, responsive and predictable internal processes, and satisfied and loyal customers. The valuation of intangible assets and company capabilities is more likely to be helpful, since these assets are more critical to success than traditional physical and tangible assets (Kaplan and Norton, 1996c; 2000a; 2004b).

Ghalayini and Noble (1996) review the differences between traditional (financial) and non-traditional performance measures (Table 4.4).

Table 4.4 Comparison between traditional and non-traditional PMs

Traditional Performance Measurements	*Non-traditional Performance Measurements*
▪ Based on outdated accounting systems	▪ Based on company strategy
▪ Mainly financial measurements	▪ Mainly non-financial measurements
▪ Intended for middle and top managers	▪ Intended for all employees
▪ Lagging metrics (weekly or monthly)	▪ On-time metrics (hourly or daily)
▪ Difficult, confusing and misleading	▪ Simple, accurate and easy to use
▪ Lead to employee frustration	▪ Lead to employee satisfaction
▪ Neglected at shop floor	▪ Frequently used on shop floor
▪ Fixed format	▪ No fixed format (depend on needs)
▪ Do not vary between locations	▪ Vary between locations
▪ Do not change over time	▪ Change over time as needs change
▪ Intended mainly for monitoring performance	▪ Intended to improve performance
▪ Not applicable to JIT, TQM, etc.	▪ Applicable to JIT, TQM, etc.
▪ Hinder continuous improvement	▪ Help to achieve continuous improvement

Source: Ghalayini and Noble (1996)

According to Kaplan (1983), many academics, professionals and consultants encouraged the need for manufacturing companies to adopt non-financial performance measurements, which then became a principal feature of PMSs and were used more extensively within companies (Frigo and Krumwide, 1999).

A survey by Booth (1997) of more than 3000 companies in Europe and North America concluded that the strongest drivers of competitive achievement were intangible assets such as quality, innovation, customers and employees. Another survey of US Fortune 500 companies and Canadian 300 companies was carried out by Stivers et al. (1998) to examine the use of non-financial performance measurements. The study looked at the relative importance of customer, market, innovation, employee and goal achievement PMs and whether these were used in the planning process. It found that whereas customer, market and goal achievement measurements were highly important, innovation and employee measurements showed less importance in goal setting. The results also suggested that although non-financial performance is viewed as important, it may not be measured; and even when non-financial measurements are made, they may not be used in the planning process.

Ittner, Larcker and Randall (2003) conclude that the importance of all non-financial performance categories to long-term organisational success is less than the anticipated use of these categories in performance measurement and decision-making. They also indicate that extensive use of PMs for one managerial purpose does not necessarily imply that they are used for another. The overall evidence of the effect of non-financial measurement on accounting-based performance was mixed. The results also proved that non-financial measurement usage was significantly associated with innovation strategy, quality strategy, the length of the product development cycle, industry regulation and the level of financial stress. Finally, the association between non-financial measurements and company performance was dependent on whether the use of these measurements matched the company's characteristics. According to Kaplan and Norton (2001), there is a view that non-financial measures are better indicators of long-term performance and that they sustain the monitoring by managers of progress towards strategic objectives.

There is empirical evidence to suggest that financial and non-financial measurements are not substitutes. Rather, the latter are used as additions to the former (Govindarajan and Gupta, 1985). However, it is only recently that effective frameworks of performance measurement have emerged that integrate both types. These frameworks work on the principle that management accounting information systems cannot rely on financial measurement alone. Professional accounting associations have also encouraged the use of integrated performance measurements (Neely, 1999). The next section discusses the most popular integrated performance measurement frameworks.

4.8 Integrated Performance Measurement Frameworks

As a result of the shortcomings of traditional PMs, which rely wholly on financial measurements, many new management systems have emerged during the last two decades. Stivers et al. (1998) suggest that there is no single performance measurement for evaluating business performance. Companies should adopt new PM frameworks that present a balance of both financial and non-financial measurements. In addition, Booth (1997, p.28) writes:

> *"A rich performance measurement framework does not mean just picking a few non-financial measures to stand alongside the financial measures. Measures not only reflect strategy, they are also used for process control, so naturally they must based on an analysis of the company's process, as well as an understanding of how these processes are supported by knowledge and relationships."*

The next section presents several integrated performance measurement frameworks developed by various authors to help sustain organisations in selecting the optimal financial and non-financial performance measurements.

4.8.1 Performance Pyramid

McNair et al. (1990, cited by Olve et al., 1999) introduced a model called the Performance Pyramid (Figure 4.2), whose main principle is similar to that of Kaplan and Norton: it links a customer-oriented model with company strategy, using both financial and non-financial factors. The model is based on TQM, industrial engineering and activity accounting. It subdivides the organisation into four different levels, with a two-way communication system. Objectives are translated from top to bottom and measurements from bottom to top. McNair et al. (1990, in Olve et al., 1999), believe that "a system of measurements can be integrated, so that operational measurements lower down are linked to financial ones higher up, and corporate management is able to see what underlies the financial measurements and what drives them".

According to Lynch and Cross (1995), the pyramid is useful for describing the communication between organisational objectives and for monitoring performance at all levels to ensure that the business strategy is satisfactorily implemented. This framework integrates the hierarchical view of business performance measurement with the business process view. It differentiates between measures which interest external parties (such as customer satisfaction, quality and delivery) and those which interest parties within the business (such as productivity, cycle time and waste). A major disadvantage of the pyramid is that it does not integrate the continuous improvement concept (Ghalayini and Noble, 1996).

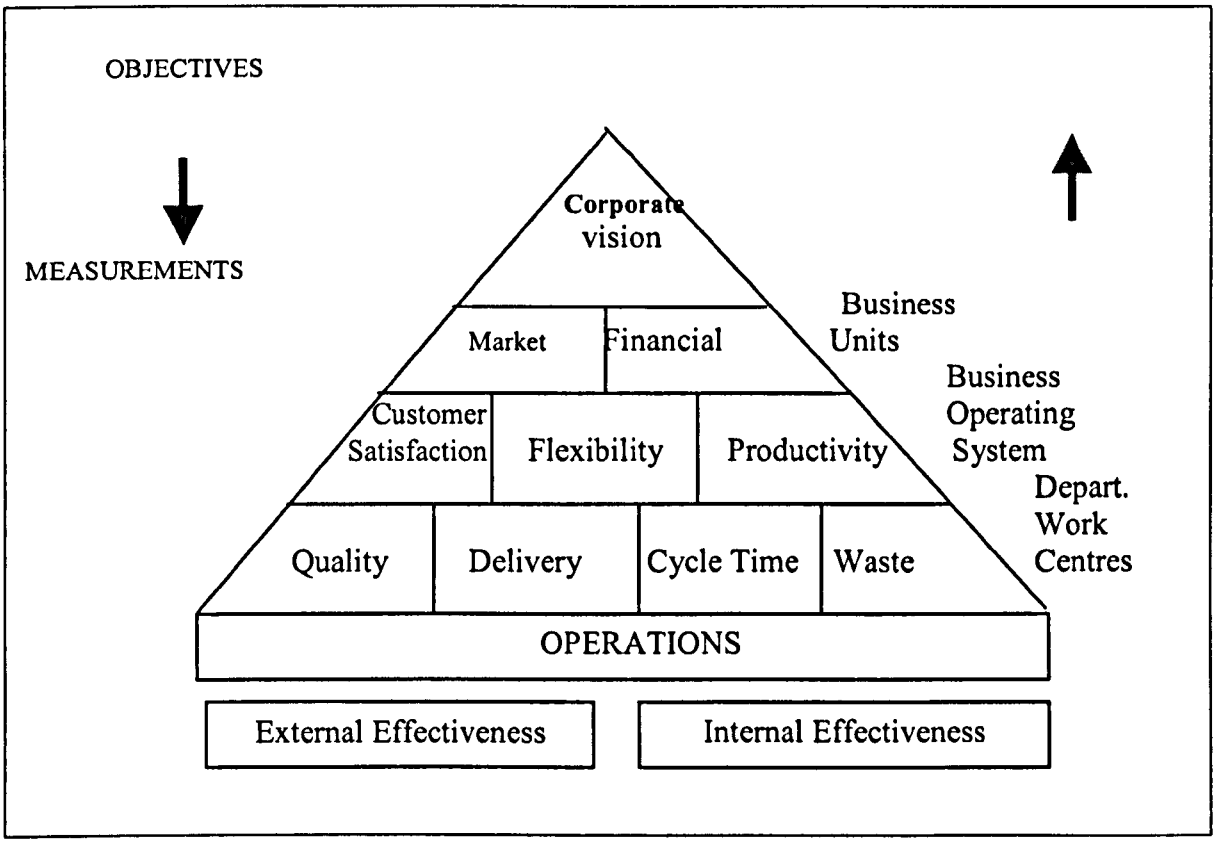


Figure 4.2 Performance pyramid

Source: Olve *et al.* (1999)

4.8.2 The EFQM Business Excellence Model

Several excellence models are in circulation, motivating organisations to review their performance across a number of dimensions. Their aim is ultimately to help organisations to be considered for awards, such as the Malcolm Baldrige Award, the European Foundation for Quality Management (EFQM) European Quality Award and the Deming Prize.

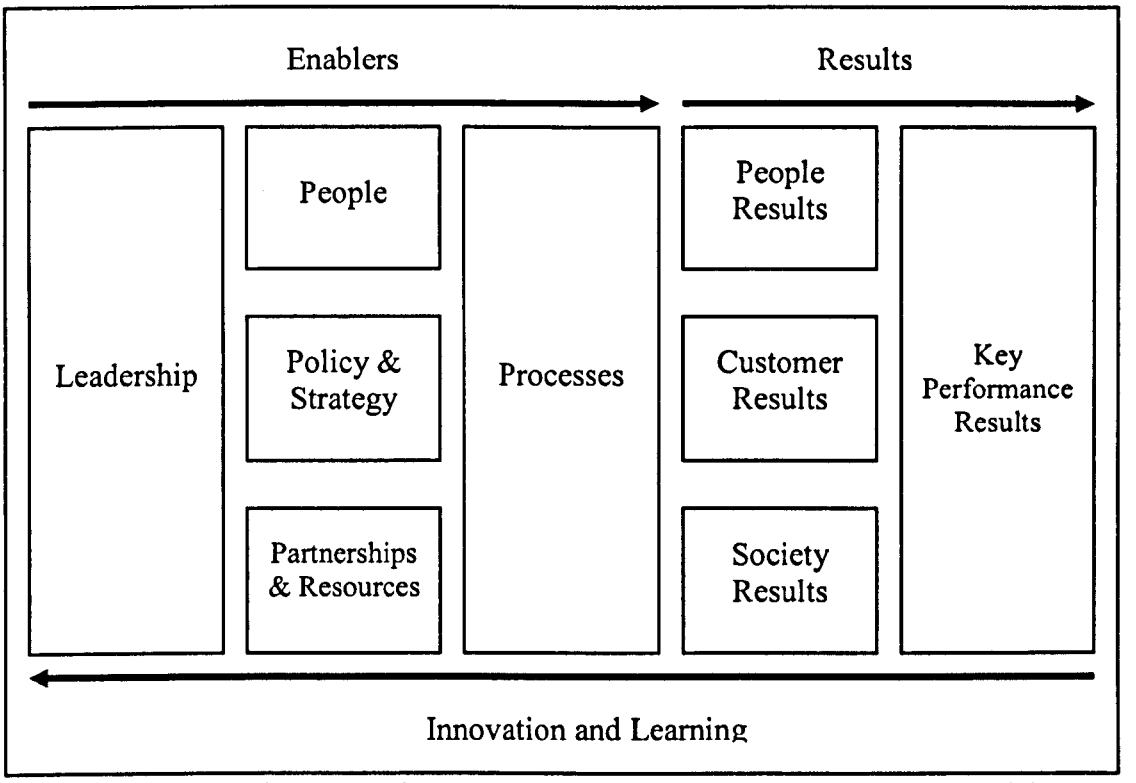


Figure 4.3 Diagrammatic representation of the EFQM Excellence Model

Source: George et al. (2003)

The EFQM Excellence Model was established in early 1992 as the framework for assessing applications for the European Quality Award (Figure 4.3). It illustrates key business areas (enablers and results) which are typically addressed by organisations to achieve superior business performance. It is the most popular organisational framework in Europe and has become the basis for the majority of national and regional quality awards (EFQM, 2004). George et al. (2003) define the Excellence Model as

> *"a framework that can be used by any business or organisation, whether private, public or voluntary sector, as a means of continuously improving performance. It enables users to look at all aspects of their operation, so offering a more holistic approach covering wider issues such as leadership, people, partnerships etc., as well as of course customer focus".*

A study by Hendricks and Singhal (2000, cited by EFQM, 2004) of the financial value of using the Excellence Model concluded that financial performance does actually improve with its proper implementation. A drawback of the Model which Dickenson et al. (2000) recognise is that only large corporations have been shortlisted for the

European Quality Award, as is the case with other awards in the USA and Japan. Wongrassamee et al. (2003) argue that this model contains no detailed instructions for its use, although the nine elements must be considered in the award assessment process.

4.8.3 EP2M Model

In 1993, Adams and Roberts (cited by Olve et al., 1999) created a model called EP2M (Figure 4.4), which focuses largely on effective progress and PM. The model is divided into four areas: external measurements (which include service, customers and markets), internal measurements (which focus on improving effectiveness and efficiency), top-bottom measurements (which break the strategy down and speed up the process of change), and bottom-up measurements (which empower ownership and enhance freedom of action).

Adams and Roberts (1993, cited by Olve et al., 1999), believe that the purpose of a PMS "is not only to implement the company's strategy, but also to foster a culture in which constant change is a normal way of life. Effective measurements should permit review and provide decision-makers and strategic planners with rapid feedback". The Boston Consulting Group's portfolio planning model, Kinsey Matrix, and Technology Portfolio Matrix further enriched this theoretical development. However, there was criticism of the way factors like market environment, business opportunities and competitive pressures were evaluated (Thomas et al., 1999).

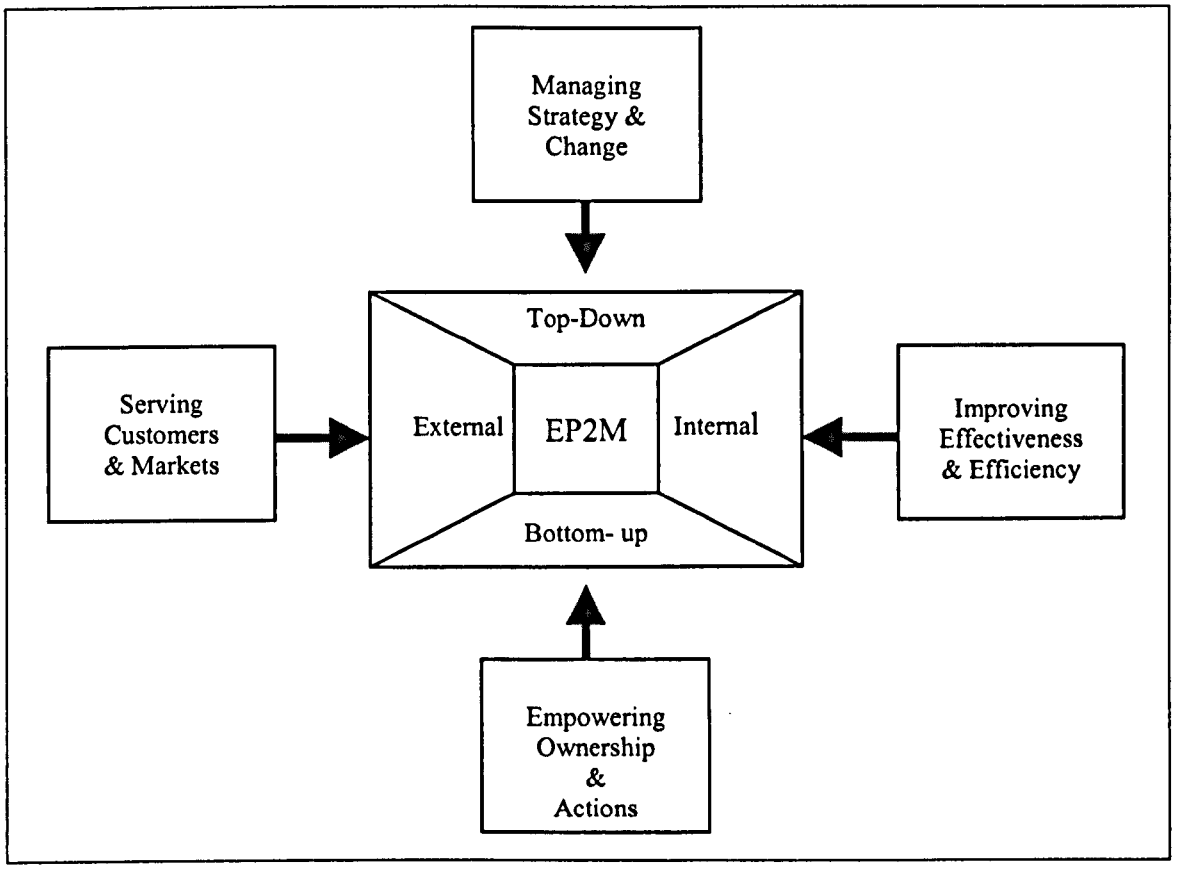


Figure 4.4 Purpose of Progress and PMs

Source: Olve et al. (1999)

4.8.4 PM Questionnaire

Dixon (1982) established the Performance Measurement Questionnaire (PMQ) to enable managers to locate the improvements required for their organisation, to assess the extent to which the existing PMs supported this and to launch an agenda for PM improvements. The PMQ consists of four sections, the first of which provides the data to be used in categorising the respondents. The second assesses the company's competitive priorities and PM system (see Table 4.5); the third performs a similar function, but with a focus on performance factors; and the final part asks respondents to name factors that best evaluate their own performance. The results of the PMQ are assessed in the following four ways: alignment, congruence, consensus and confusion. According to Ghalyini and Noble (1996), the PMQ cannot be used as a comprehensive integrated performance measurement system and its main drawback is its failure to take into consideration continuous improvement.

Table 4.5 Part of Section Two of PMQ

Long-run importance of Improvement	*Improvement areas*	*Effect of current PMs on improvement*
None >>> Great		Inhibit >>> Support
1 2 3 4 5 6 7	Quality	1 2 3 4 5 6 7
1 2 3 4 5 6 7	Labour efficiency	1 2 3 4 5 6 7
1 2 3 4 5 6 7	Machine efficiency	1 2 3 4 5 6 7

Source: Ghalyini and Noble (1996)

McMann et al. (1994) indicate that there are several types of analysis that can follow from the questionnaire data, such as:

- Alignment analysis, which examines the congruence of an organisation's strategy, activities and measurements.
- Congruence analysis, which investigate how the existing performance measurement system supports business strategy.
- Consensus analysis, which examines the data by management and functional level to provide information about employees' perceptions and attitudes.
- Confusion analysis, which provides information on the degree of variation in responses.

4.8.5 The Tableaux de Bord

This model emerged in France and was developed by process engineers who were searching for ways to improve the production process by understanding the cause-effect relationships between actions and process performance. The phrase *tableaux de bord* literally means 'dashboard' and it represents a set of indicators which allows managers or engineers to operate successfully. It makes use of operational measurements and thus can be used within organisations without depending on financial performance measurement alone (Lebas, 1994). According to Epstein and Manzoni (1998), the development of this framework involves translating a business vision into a set of explicit objectives from which units identify their key success factors and translate them into quantitative key performance measurements. They suggest that this approach has not been widely adopted in practice due to the lack of importance granted to non-financial indicators.

4.8.6 Balanced Scorecard – a development in PMSs

It can be argued that using key non-financial performance measures and integrating them with financial ones is challenging for organisations. In the search for better information on strategic success, many companies are supplementing financial measurements with a broad range of non-financial measures (Ittner, Larcker and Randall, 2003). According to Nelly and Adams (2001), each framework claims to be comprehensive and unique, but they all coexist because they add value. However, to date little research has been done on understanding the success and failure of the implementation of these integrated performance measurement frameworks (Bourne et al., 2002). The balanced scorecard, one of the most widely used, deals with performance at the organisational, business unit and individual levels (Abran and Buglione, 2003). In this context, Neely et al. (2001) state that the BSC "has been used—and often abused—across the world, whereas many other frameworks have tended only to have regional appeal".

The BSC is seen as a major development in performance measurement frameworks on account of its focus on an effective combination of financial and non-financial measurements to provide a reliable feedback for management control purposes and performance evaluation (Kaplan and Norton, 1992; Ittner and Larcker, 1998a; Hoque and James, 2000; Malina and Selto, 2001; Lillis, 2002; Rouse et al., 2002; Giannetti et al., 2002; Guenther and Gruening, 2002). It translates an organisation's vision and strategy into a comprehensive set of performance measures to provide the framework for a strategic measurement and management system. Using BSC as a strategic management system would overcome the inability of traditional management systems to link a company's long-term strategy with its short-term actions (Kaplan and Norton, 1996c). However, the extent to which organisations actually use multiple measures to link their performance measures more closely to strategic priorities is still largely unknown (Banker et al., 2001).

In one respect, modern performance measurement in general and the BSC in particular are both intended to improve poor strategy execution. One of the reasons why companies often fail to translate strategy into action has to do with the PMS, because they fail to collect the right information to monitor progress towards their

strategic goals (Edwards, 2001). Further, different strategies coming from different functions of an organisation become a barrier to strategy implementation, as most organisations have great difficulty in communicating and coordinating across these specialised functions (Kaplan and Norton, 2001). Because communicating business strategy and aligning individual goals with corporate goals are critical in many organisations, a BSC approach can provide a means of communication and alignment of corporate strategies by cascading and linking measures to each level of the organisation, including business units, support units and employees.

4.9 Summary

It can be concluded from the general overview provided here that performance measurement system is an important part of the management accounting information system. This chapter has given a detailed explanation of management control and strategy, and of the link between performance measurement and strategy. It started by giving a general introduction to management accounting, following which there was a brief discussion of the special case of SOEs such as Saudi Aramco, then a definition of PMs and a discussion of the need for measurements. It then classified the various types of PMS as market-based, accounting-based and non-financial-based. The literature reveals a need to combine financial and non-financial PMs. Moreover, non-financial measurements are necessary in the current environment where organisations are faced with developments like increased competition, new manufacturing practices and continuous improvement.

This chapter has also discussed the advantages and disadvantages of the various frameworks, of which organisations must choose the one most suited to their objectives. Management accountants and academics have shown a great deal of recent interest in the balanced scorecard. Based on the literature reviewed in this chapter, the following chapter is devoted to the BSC. Through a more thorough review of the relevant literature, it will examine the factors that influence BSC and its evaluation in organisations. The purpose is to provide an understanding of the assumptions, strength and weaknesses of the balanced scorecard approach.

5. BALANCED SCORECARD AND CRITICAL SUCCESS FACTORS

5.1 Introduction

In the increasingly complex and competitive oil and gas industry, managers need much more information than the traditional financial measures of performance can give in order to make intelligent strategic and day-to-day decisions. The BSC concept, which has spread rapidly throughout the business and consulting communities worldwide (Neely, 1999; Schneiderman, 1999), is nonetheless a recent introduction within management systems, and consequently implementation methodologies are still in a nascent stage and developing with experience. Accordingly, there has not yet been a common, comprehensive or holistic approach to BSC evaluation in the oil and gas industry in Saudi Arabia.

The BSC is a subject of continuing interest for academics and organisations. In the current environment, the single most important challenge that managers face is the implementation of changes needed to bring about enhancements in performance measurements. This problem is closely related to the difficulty in finding appropriate and reliable approaches that can be used systematically.

This chapter, the second part of the literature review for the current study, examines three areas: (1) the movement from performance measurement to performance management, (2) the BSC model as a tool of management performance and (3) critical success factors for BSC implementation.

5.2 Background and Development of BSC

The BSC model was developed by Robert Kaplan, an accounting professor at Harvard University, and David Norton, a consultant from the Boston area. The first clear signs

of the concept were noted by Johnson and Kaplan (1987). Further documentation of the origins of BSC from 1990 onwards happened when the Nolan Norton Institute, the research arm of KPMG, sponsored a one-year, multi-company study of performance measurement. According to Kaplan and Norton (1996a), the motivation behind the study was the understanding that existing PM approaches, which relied mainly on financial accounting measures, were becoming obsolete.

As Brewer et al. (2004) have detailed, Kaplan and Norton conducted research into 12 companies in the USA as part of their efforts to develop a new method of PM. They concluded that relying on financial measures alone was not effective—and was even detrimental to value creation—for organisations working in the new business environment. This was the stimulus for the development of the BSC concept, which they hoped would produce a "set of measures that gives top managers a fast but comprehensive view of the business" (Kaplan and Norton, 1992; 1996c; 2004b).

Ever since the article summarising the results of their study (Kaplan and Norton, 1992), increasing numbers of managers across the world have embraced BSC as a strategic management technique, as it has given corporate management a structured approach to measuring and managing business performance in four key areas, namely customers, financials, internal processes, and organisational learning and improvement (Kaplan and Norton, 1996a). An ever-growing number of firms are also replacing their financial PM and compensation systems with BSCs, incorporating multiple financial and non-financial indicators (Kaplan and Norton, 1996a; 2004b).

5.2.1 Definition of BSC

Niven (2002) defines the BSC as

> *"a carefully selected set of quantifiable measurements derived from an organisation's strategy. The measurements selected for the Scorecard represent a tool for leaders to use in communicating to employees and external stakeholders the outcomes and performance drivers by which the organisation will achieve its mission and strategic objectives".*

Kaplan and Norton (1992, 1996, and 2001) define it as a framework to facilitate the translation of the business strategy into controllable performance measures. In particular, the BSC is considered a comprehensive system of strategically aligned performance measures.

5.2.2 Three Generations of BSC

Since its introduction in 1992, the BSC has undergone three generations of developmental changes (Achterbergh et al., 2003; Andersen et al., 2004; Kaplan and Norton, 2004b; Lawrie and Cobbold, 2004), consisting of numerous alterations to the original concept to improve its effectiveness as a strategic management tool (Andersen, 2004).

5.2.2.1 First Generation

The original BSC was essentially a simple '4 box' approach to PM (Cobbold and Lawrie, 2002; Lawrie and Cobbold, 2004), combining financial and non-financial performance measures by grouping them into four perspectives (Kaplan and Norton 1992). It was clear that the method used to select the measures to be included would be critical to its subsequent success, both in terms of filtering and clustering (Lawrie and Cobbold 2004). Hence, a significant design challenge was to choose the key measures to be monitored (Cobbold, and Lawrie 2002).

5.2.2.2 Second Generation

Taking on board the drawbacks of their first version of the BSC, Kaplan and Norton suggested a direct mapping between each of the several strategic objectives attached to each perspective and one or more PMs (Lawrie and Cobbold 2004). It was also made clear that the objectives should be linked in cause-and-effect relationships (Kaplan and Norton, 2004b).

5.2.2.3 Third Generation

Later, Kaplan and Norton put forward the concept of a so-called *strategy-focused organisation* and introduced its five principles, which led them to claim that the BSC

could be used as a strategic management system, rather than a PM system (Kaplan and Norton, 2001a). With these new developments, the BSC has come to resemble the Japanese *hoshin kanri* in the way it adheres to strategic control principles (Tennant, and Roberts 2001).

5.2.3 Principal Purpose of BSC

The main purpose of BSC, according to Van der Meer and Vosselman (2004), is to put into action the company's vision and strategy, which, rather than control, are at the centre of the concept. Although it sets out goals for the company, it is expected that personnel will adopt whatever behaviour and take whatever actions are necessary to arrive at those goals (Debnath et al., 2004; Phillips, 2004; Kettunen and Kantola, 2005; Urrutia and Eriksen, 2005; Valiris et al., 2005). Kaplan and Norton (1992) also emphasise that the BSC

> *"provides executives with a comprehensive framework that translates a company's strategic objectives into a coherent set of performance measures... It complements traditional financial indicators with measures of performance for customers, internal processes, and innovation and improvement activities."*

5.3 The Balanced Scorecard Model

In an interview given to de Waal (2003), Kaplan acknowledged that there might be a huge gap between what people at the top think in terms of vision and strategy and how these are implemented by the 'footsoldiers' at the bottom of the organisational structure, largely caused by communication problems. The BSC helps in bridging this gap between strategy and employee development, by improving the communication of strategy, translating over-arching, abstract principles into clear priorities for everyday action and relating initiatives to tangible outcomes.

Lawson et al. (2004) state that the BSC transforms vision and strategy into critical success factors (CSFs) within four different perspectives: financial, customer, internal

processes, and learning and growth. This agrees with Kaplan and Norton (2000a), who add that from the CSFs, a number of appropriate measurements and objectives are compiled and balanced in the scorecard. Although there are many positive consequences of working with the BSC, one of the most important is that it provides an incentive for employees to strive for the shared vision of the company (Kaplan and Norton, 1992).

Wongrassamee et al. (2003) contend that there is a need for BSC to acknowledge and make explicit the sequence of cause-and-effect relationships between outcome measures and the performance drivers of those outcomes. Each measure selected for a BSC should be a component in a chain of cause-and-effect relationships that communicates to the organisation the meaning of its strategy (Kaplan and Norton, 1996c).

According to Mendoza and Zrihen (2001), BSC is a strategic tool that allows companies to associate strategy directly with a set of indicators and to track all the factors influencing corporate performance. The scorecard technique recognizes that companies require measures that perceive them from multiple standpoints, including the requirements of stakeholders. According to Silk's (1998) estimate, 60% of the US Fortune 500 companies had either implemented or were trying out BSC.

The focus on goal congruence is a basic principle of the BSC (Newing, 1994). With companies now using it to manage their long-term strategies, Dines and Palmer (1998) argue that the BSC has developed into a strategic management system. It is not just a performance measurement system, but takes a more holistic approach, channelling and focusing the energies, capabilities and specific knowledge held throughout the organisation (Kaplan and Norton, 1992).

According to Radnor and Lovell (2003), the concern of managers is to fulfil the BSC's purpose, which is selecting measures that strike a balance between short-term and long-term objectives, between financial and non-financial measures, between lagging and leading indicators, and between internal and external performance perspectives (Hasan and Tibbits, 2000; Andersen et al., 2004).

The BSC concept had evolved by the time of the Kaplan and Norton (1996a) article from a simple performance measurement system to an entire organisational framework, or its operating system. In a later article, Kaplan and Norton (2001b) examined BSC's role as a management system for the first time, describing how it was used by organisations as a strategic mapping tool to accomplish comprehensive and integrated transformations (Angel and Rampersad, 2005; Karathanos and Karathanos, 2005; Wells and Weiner, 2005).

Kaplan and Norton (2001a) claimed to have provided a complete tool for creating a strategy-focused organisation and later (2004a) expressed the idea that "without a comprehensive description of a strategy, executives cannot easily communicate the strategy among themselves or to their employees. Without a shared understanding of the strategy, executives cannot create alignment around it".

Consequently, BSC has developed into a strategy map (Gumbus and Wilson, 2004). The scorecard explicates the strategy hypothesis in terms of cause-and-effect relationships that can be verified. Andersen et al. (2004) add that the strategic hypothesis requires those activities to be identified that are the drivers (or lead indicators) of the desired outcome (lag indicators).

Kaplan and Norton (2001c) have suggested that a successful BSC programme should be a change project, rather than a metrics project, focusing on mobilisation and momentum. They elaborate: "Executives use the BSC to communicate a vision for performance that is dramatically better than the present. The focus then shifts to governance, with emphasis on team-based approaches to deal with the transition to a new performance model".

Wenisch (2004) lists the characteristics of the BSC as presented in Table 5.1. According to him, it could be expected that the BSC would lead to homogenization, as increasing numbers of companies apply the concept. However, Kaplan and Norton (1993) refute this:

> *"The BSC is not a template that can be applied to businesses in general or even industry-wide. Different market situations, product strategies, and competitive environments require different scorecards. Business units devise customized scorecards to fit their mission, strategy, technology, and culture."*

Fuelled by enthusiastic success stories narrated by Kaplan and Norton and by its high visibility and popularity, the BSC has become an interesting subject for researchers. However, its validity is contested among scholars. While its proponents, who are mostly consulting companies and the creators of the concept themselves, argue that it is an innovative PM and strategic management tool, its effectiveness as a communication, control and evaluation mechanism has been questioned by some critics (Malina and Selto, 2001), as have some of its specific design features (Nørreklit, 2000).

Table 5.1 Characteristics of BSC according to Kaplan and Norton

PM from four perspectives	***Learning and growth, Customer, Internal processes, Financial***
Balanced set of indicators	Financial and non-financial indicators Outcome measures and performance drivers (lag and lead indicators) Short-term and long-term orientation
Focus on strategy	Indicators should be deduced from strategy, and thus help to implement and measure strategy
Avoidance of proliferation of indicators	Use of reasonable number of indicators by focusing on the strategically most critical ones
Cause-and-effect relationships	Non-financials and financials should be linked in a logical way so that non-financials can predict future financial performance
Strategic management	Through communication and translation of the strategy into operational goals, related feedback and business planning

Source: Wenisch (2004)

According to Ittner and Larcker (2003), although most organizations have adapted one or another non-financial measurement framework such as the BSC, they rarely establish the cause-and-effect linkages between measurements and desired outcomes. Jazayeri and Scapens (2008), in their analysis of the use of BSC in BAE Systems, also

found that simple cause-and-effect relationships were regarded as problematic. One manager, in particular, painted the following picture:

> *"I think it's wrong to say that you can look at the complete scorecard – it's not sophisticated enough for you to be able to see cause-and-effect everywhere. It's not as clever as that. But there are areas of the scorecard where you can see an impact on the other areas and where you can see poor performance in one area having a knock-on effect on poor performance in another area at some other time."*

This also permits self-serving managers to increase their own earnings and bonuses by appropriately selecting and manipulating measurements.

5.3.1 Process of BSC Implementation

The BSC was initially developed as an improved PM system. It soon became clear, however, that it was much more than that and could be used as a management system to implement strategy at all levels of the organization (Mohamed, 2003; Andersen et al., 2004; Gumbus and Wilson, 2004; Wang, 2005; Wells and Weiner, 2005). As was mentioned earlier, the BSC provides linkages between the company's vision and strategy and a number of measures, which together function as a framework for strategic measurement. Thus, companies that make use of the scorecard do not need to depend on short-term financial measures as the sole indicators of performance; they have an alternative in the form of four new management processes that link long-term strategic objectives with short-term actions (Kaplan and Norton, 1996b).

Kaplan and Norton (2001c) have suggested that all the early BSC adopters used it in order to support major strategic and organizational change, and many management control systems are based on financial performance measures which have little relation to the organization's progress in achieving long-term strategic objectives. Hence, by implementing the BSC, they argue, companies can introduce management processes that aim to link long-term strategic objectives with short-term actions. Figure 5.1 presents these processes and their linkages.

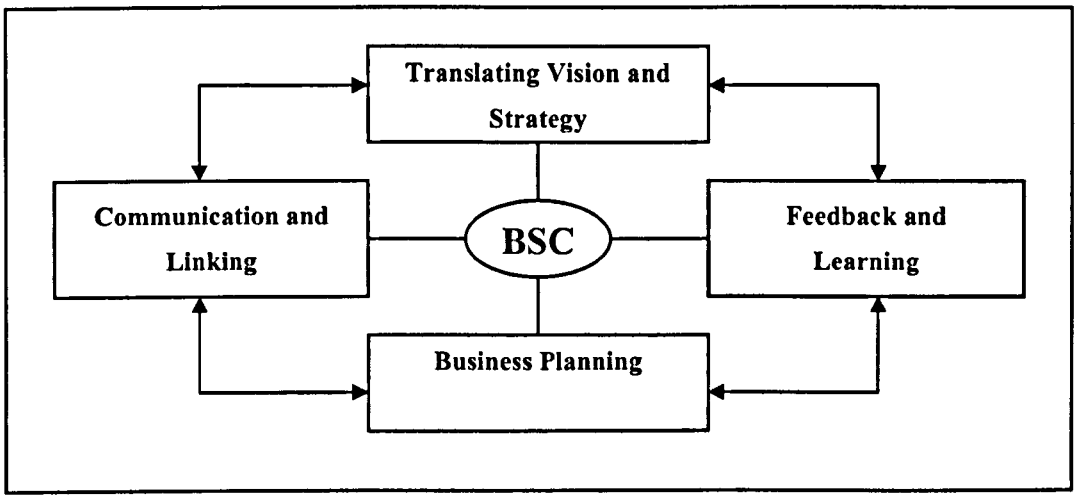


Figure 5.1 Managing Strategy – Four Processes

Source: Kaplan and Norton (1996c)

5.3.1.1 Translating Vision and Strategy

Kaplan and Norton (1996c) suggest that in order to build up BSC, it is imperative that the top level management translate the strategy and mission of the business into a set of specific objectives susceptible to quantification. This translation of strategic objectives into quantifiable measures helps to clarify the management's understanding of the strategy and helps to achieve a coherent consensus.

5.3.1.2 Communicating and Linking

The BSC can help in translating high-level objectives into operational objectives and effectively communicating the strategy throughout the organisation. This has the advantage of assisting employees to focus their efforts on working towards a common goal (Zelman et al., 2003; Urrutia and Eriksen, 2005). If this is done well, it should result in increased flexibility in the organisation. The BSC thus assists managers in ensuring that the long-term strategy is understood at all levels of the organisation, and that it is in alignment with both departmental and individual goals (Kaplan and Norton, 1996c). However, the organization will not be able to use the scorecard as the main organizing framework for its management systems unless it ties the balanced set of measures to the compensation system (Kaplan and Norton, 2004b). Hence, it

should link rewards to scorecard measures in order to play a central role in the determination of incentive compensation plans.

5.3.1.3 Business Plan

The company must integrate its business and financial plans. This includes aligning departmental business plans to organisational strategy. Kaplan and Norton (2000a) advise that long-term specific targets for financial measures should be set by senior executives; then lower-level management should seek specific targets for their customers, internal processes and learning and growth measures, and reassess the targets wherever necessary in order to achieve breakthrough objectives.

5.3.1.4 Feedback and Learning

Feedback on whether the execution of strategy is proceeding as planned and on the success or failure of the strategy itself is received by the executives. According to Kaplan and Norton (2001b), this process of feedback and learning equips the organisation with the capability for strategic learning. It can thus view the results from the four perspectives and reassess its strategy in the light of recent performance. Therefore, the BSC gives the organisation a mechanism to be reflexive and consequently provides opportunities to adapt or change strategies to fit changing circumstances (Debnath et al., 2004; Wang, 2005).

5.3.2 Four Perspectives of BSC

Kaplan and Norton (1996c) suggest that this approach strikes a balance between external measures for shareholders and customers, and internal measures for critical business processes, innovation, and learning and growth. These are balanced between those that measure outcome (i.e. the results of past efforts) and those that drive future performance.

According to Kaplan and Norton, the BSC seeks answers to the following questions:

- How do shareholders perceive us? (Financial perspective)
- How do customers look at us? (Customer perspective)

- What must we excel at? (Internal business process/operational perspective)
- Can we continue to improve and create value? (Learning & growth/innovation perspective).

The BSC is thus a management system for translating an organisation's vision into a set of performance measures distributed among the above four perspectives (see Figure 5.2). Kaplan and Norton (2001a) define vision as an image of the future that provides clear guidelines for the organization and assists individuals in understanding why they should be supporting the organization. Some measures are meant to assess the progress of an organisation towards achieving its vision; others evaluate the long-term drivers of success. With the help of the BSC, an organisation keeps track of its current performance (finances, customer satisfaction and business process results); its efforts to develop processes, motivate and educate employees and enhance information systems; and its ability to learn and improve.

These BSC perspectives address three major stakeholders of the organisation (shareholders, customers and employees) to ensure that the organisation's strategy is implemented and achieved exactly as intended. It is not necessary to use all the perspectives listed and there is nothing to stop a company from adding another. In fact, organisations implementing a BSC are encouraged to consider adapting it to their environment, internal business processes and terms of use. Kaplan and Norton (1997) also acknowledge the requirement for change in BSC perspectives at times, but they add a note of caution that companies should consider such change carefully. They argue that to try to cover too many factors is to risk losing the main focus, which constitutes the basis for competitive advantage.

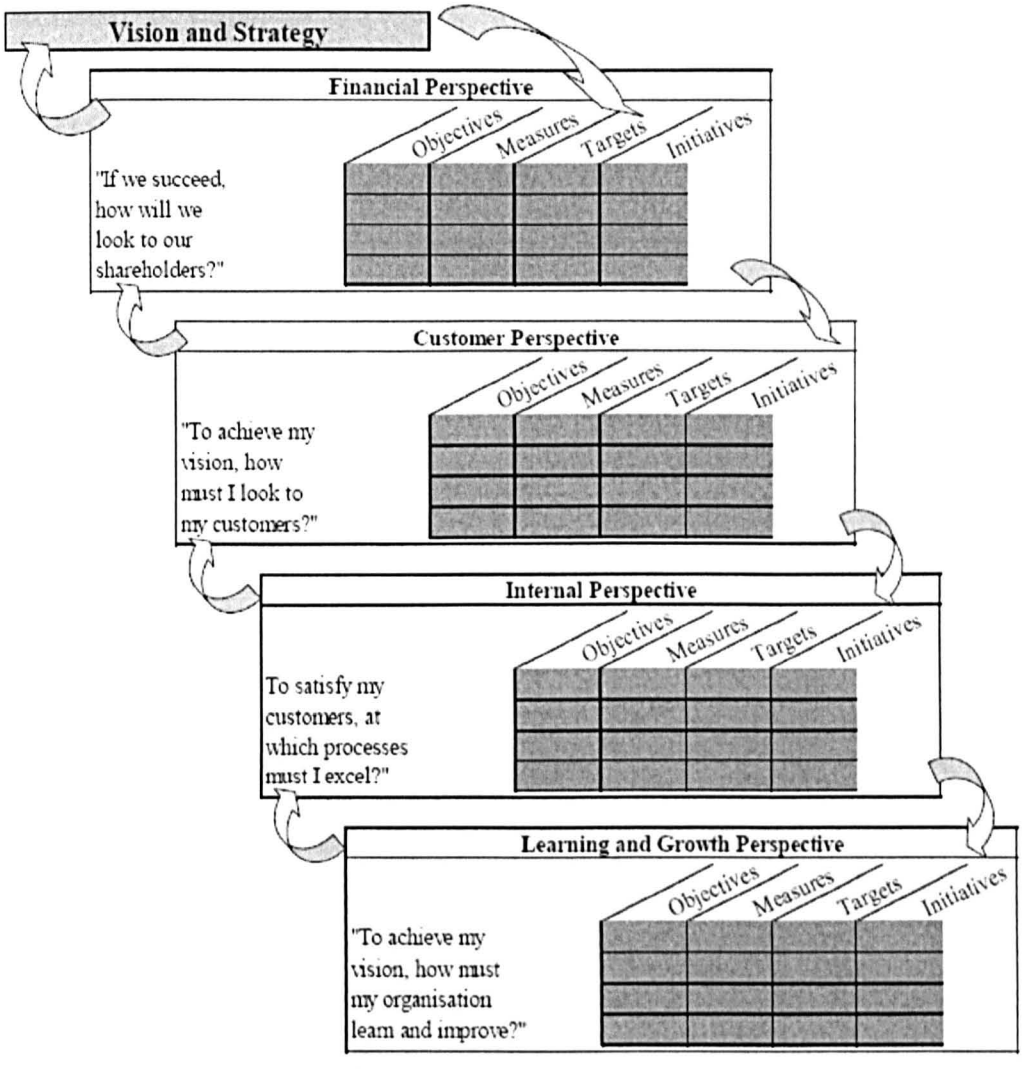


Figure 5.2 Four perspectives of BSC

Source: Kaplan and Norton (2001a)

According to Andersen et al. (2004), in order to maintain balance within the scorecard, the four perspectives must be treated as interdependent, avoiding the risk of different actions counteracting each other. The concept has a dual purpose: to put the organisation's vision and strategy into action, and to outline business strategy in four different respects, corresponding to the four perspectives (Kaplan and Norton, 2001a).

5.4 Evaluating the Balanced Scorecard

The BSC is beneficial to organisations in many ways. For instance, it focuses on accountability with respect to goals and objectives, and relates strategy to performance. It provides a means to assess whether progress is being made and enables the organisation to adjust accordingly. It gives employees a better understanding of the cause-and-effect relationships in regular activity (Misiaszek and Oriot, 2002; Vaivio and Jarvenpaa, 2002; Sandkuhl et al., 2003; Neely et al., 2004; Ahn, 2005; Anand et al., 2005; Crawford and Scaletta, 2005; Dilla and Steinbart, 2005; Lawson et al., 2005; Phillips and Louvieris, 2005). Many other benefits of the BSC have been recognized in previous studies and these will be discussed in the following section.

5.4.1 The BSC as a Strategic Management Tool

Kaplan and Norton (2001a) argue that the BSC has evolved as a framework for measuring organisation performance. Recognising that measurement has consequences beyond reporting the past, they elaborated the BSC concept from a mere performance measurement system to an organising framework for a strategic management system (see Figure 5.3).

Many researchers concur with the notion that the BSC is a strategic management tool, enabling senior management to communicate their vision for change, at the same time empowering business divisions and employees to find new ways of accomplishing day-to-day activities while working towards the company's strategic objectives (Epstein and Manzoni, 1998; Ritter, 2003).

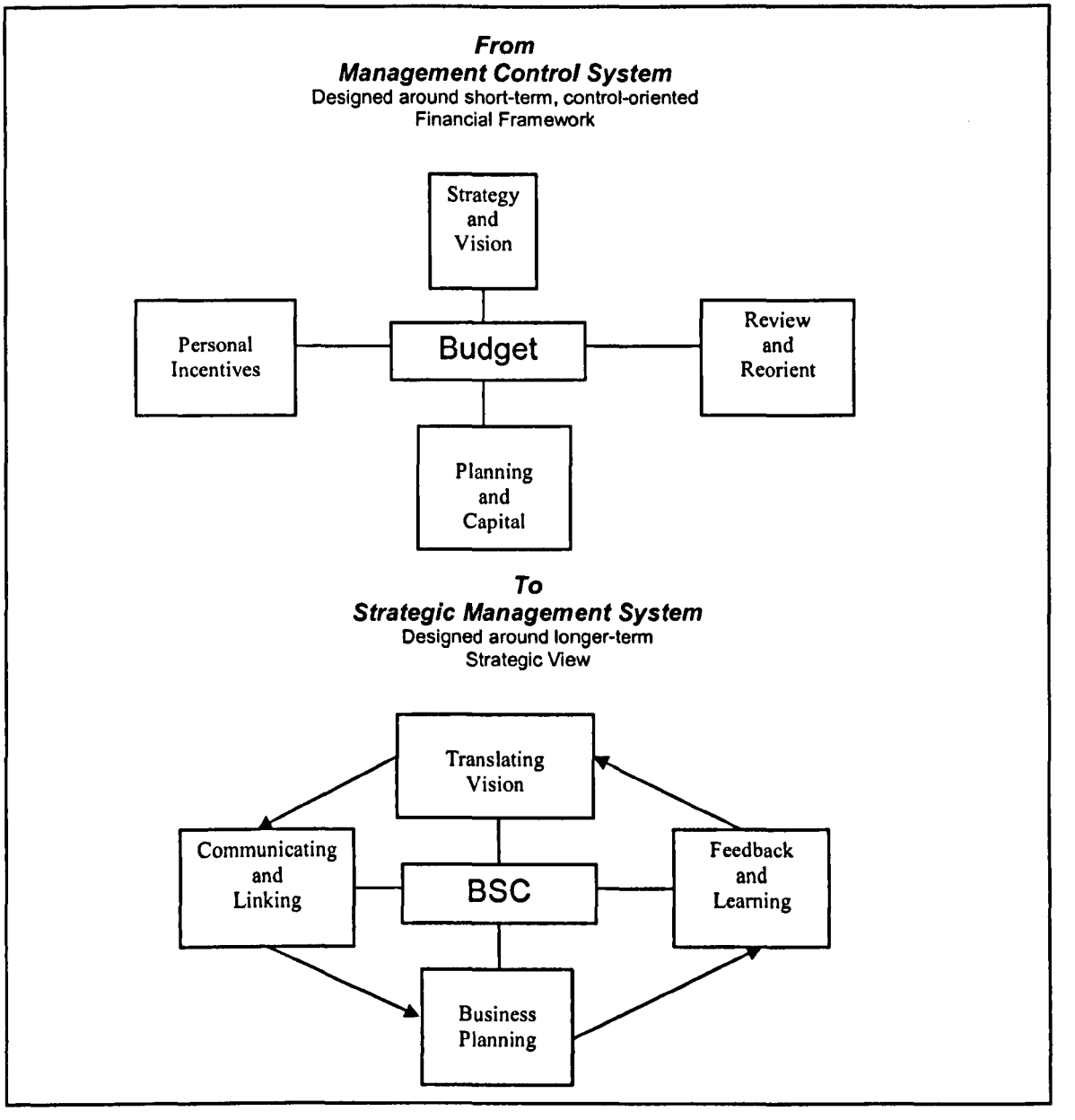


Figure 5.3 Starting from a new premise

Source: Kaplan and Norton (2001a)

According to a recent Institute of Management Accounting survey of performance, the scorecard has proved to be an effective tool of strategy communication and clarification (Salterio and Webb, 2003). The benefits of using the BSC as a strategic management tool (Bailey et al., 1999) are:

- Enhancing communication within the organisation.
- Promoting the active formulation and implementation of organisational strategies.

- Improving the alignment of divisional or individual goals with the organisation's objectives and strategies.
- Updating organisational strategies and making them visible .
- Aligning annual or short-term operating plans with long-term strategies.
- Aligning performance evaluation measurement and long-term strategies.

5.4.2 The BSC and Cause-and-effect Relationships

Norreklit (2000) contends that apart from financial and non-financial measurements, the BSC also contains outcome measures and the performance drivers of outcomes, which are linked together in cause-and-effect relationships, making the PM system an integrated control system. Also, Kaplan and Norton (2001b) recommend that "every measure selected for a BSC should be an element of a chain of cause and effect relationships that communicates the meaning of the business unit's strategy to the organisation". Thus, controlling the essential factors in a cause-effect relationship between measures may lead to a much better perspective on the requirements the business has in order to achieve its intended outcome performance (Lawson et al., 2005).

Interview data reported from a case study of a Fortune 500 company suggests that managers believe that the cause-and-effect relations included in their scorecard have resulted in increased efficiency and profitability (Salterio and Webb, 2003). Chang et al. (2002, cited by Kasperskaya and Oliveras, 2003) offer some preliminary evidence of the existence of cause-and-effect relationships within the Performance Assessment Framework (PAF) of the National Health Service in the UK.

However, there are many researchers who seem to disagree with the notion that the BSC approach is based on cause-and-effect relationships, arguing that this assumption is ambiguous and in need of further elaboration (Otley, 1999; Norreklit, 2000; Ahn, 2001; Malina and Selto, 2001; Malmi, 2001; Laitinen, 2002). Norreklit (2003) argues that there is no causal relationship in some areas of measurement in the BSC, although there is considerable covariation between, for example, customer loyalty and financial performance. According to Ittner, Larcker and Randall (2003), about 77% of

companies which claim to employ BSC make very little use of causal relationships between leading and lagging indicators. This apparent contradiction between the assumptions underlying the BSC and the nature of the relationships between non-financial and financial indicators provides the opportunity for further research (Kaplan and Norton, 2001b; Kasperskaya and Oliveras, 2003).

5.4.3 The Number of BSC Perspectives and Measures

Kaplan and Norton (1996) have argued that there is no specific theory to suggest that any given number of perspectives is necessary and sufficient: "We have yet to see companies using fewer than these four perspectives, but, depending on industry circumstances and a business unit's strategy, one or more additional perspectives may be needed." DeBusk et al. (2003) concur, suggesting that the number of perspectives in a PMS should depend on strategies, economic conditions and competitive threats. Many other researchers have incorporated additional perspectives focusing on employees, the environment, partners and suppliers (Edvinsson and Malone, 1997; Schiemann and Lingle, 1999). For instance, the employee perspective is certainly incorporated within the learning and growth perspectives and the supplier perspective is incorporated within the internal business process perspective (Kaplan and Norton, 1997).

In another context, each perspective of the BSC consists of a number (between 16 and 20) of performance measures (Kaplan and Norton, 1992). According to Salterio and Webb (2003), the BSC usually consists of a driver set of 16 to 18 performance measures organised into four perspectives, depending on the firm's strategy. Organisations that employ the BSC should identify the relevant measures for their use depending on their objectives and strategies (Chow et al., 1997). These performance measures should represent the critical success factors for the organisation (Otley, 1999). To conclude, the number of perspectives and the number of measures will depend upon context.

5.5 Limitations of the BSC

As no single model can suit the requirements and needs of all companies and satisfy all critics, so the BSC has been subjected to much criticism and questioning. Butler et al. (1997) view the model as being too general to be sure of fitting within the culture of any given organisation. The BSC may also overlook corporate mission, which according to them is a drawback, as employees sometimes accept the company's mission without fully understanding it, thus underlining the importance of measuring what the employees do understood the mission to be. Norreklit (2000) has been critical of some of the relationships between perspectives and measures, doubting the assumptions on which the BSC is based, nullifying its validity as a strategic management tool.

According to Norreklit (2003), although the BSC is a helpful tool for top-level management, providing an overall view of company performance, it is not very convenient and actually more time-consuming for lower-level management. Bontis et al. (1999) criticize the BSC as a complicated management tool with limited perspectives. As an example, there is an issue of whether it constitutes an appropriate basis for a compensation system. Johnsen (2004) argues that a compensation system serves as a motivational instrument for employees to work more efficiently within the organisation. If companies base their compensation system on the BSC, there is a possibility of there being some level of uncertainty as to whether financial measures are still considered better than non-financial ones, as they are clearer and easier to understand. Consequently, many organizations may still base their compensation systems on financial measures, even after the implementation of BSC. Lipe and Salterio (2000) concur, noting that it is very difficult to calculate precise numbers when measuring non-financial items. There will always be some residual level of uncertainty, making businesses hesitant in their use of BSC as a performance evaluation system (Johnsen, 2004; Marr and Adams, 2004).

For Kenny (2003), the BSC does not work. He finds the four categories 'strange', since all stakeholders apart from customers are excluded, and argues for including innovation and learning in internal business processes. Further, he objects that "the

framework is totally arbitrary" and that "crucial measures are almost inevitably overlooked". Organisations which claim to have employed the BSC have not done so in the form its inventors intended and hence have not truly implemented BSC. For Kenny, the most appropriate way to measure performance is to categorise measures in terms of key stakeholders (e.g. customers, employees, suppliers and shareholders), then link measurements to corporate direction. He argues for a scorecard that is 'focused' rather than 'balanced'.

McAdam and O'Neill (1999), having analysed the BSC based on their framework of TQM, conclude that the BSC remains at best a means of effectively measuring strategy rather than of deciding it. They also note that although the BSC focuses considerable attention on the connection between customer improvement initiatives and the organisation's strategy, it is silent on how to identify new customers and markets (Marr and Adams, 2004).

The BSC has also been criticized for its inability to assign a value to its own use. While Kaplan and Norton have argued that it creates value for the company, Jazayeri and Scapens (2008) are strongly of the view that no such value can be assigned. They claim that even BAE Systems, a major UK aerospace company, was unable to do it, because there were too many variables impacting on value creation.

The treatment of causal relationships in the BSC has been questioned by many researchers. Wenisch (2004), for instance, raises doubts as to whether they are in the proper proportions, especially with respect to non-financial measures. As an illustration, since it is commonly accepted that improving product quality will certainly result in better customer satisfaction, businesses should prioritise efforts towards quality improvement. However, it is very difficult to quantify how much the business will benefit from improving quality, as its current spending on quality improvement will realise benefits only much later.

Marr and Adams (2004) have argued that it is too difficult to understand the cause-and-effect relationships between outcome measures and driver measures for each of the four perspectives, as these relationships can be very complex and because their

interlinked nature means that any one driver could cause changes in several outcome measures. Similarly, Jazayeri and Scapens (2008) are strongly of the view that causality in business is not clear-cut: there may be many causes for some effects, some more important than others. Meyer (2002) believes that the BSC does not succeed in correlating measures: "Look across a large number of firms or their business units [which have implemented BSC] and you will find that profitability, market share, customer satisfaction, and operating efficiency are weakly and sometimes negatively correlated".

Further, Jazayeri and Scapens (2008) suggest that the BSC has no input into the determination of strategy. All it does is to describe or map the strategy that is determined independently of the BSC, at best helping to coordinate the strategy process.

Finally, BSC implementation is usually a laborious and time-consuming process, while it is not clear whether what applies to the UK, the US or Japan also applies to countries like India, Egypt or Saudi Arabia (Assiri et al., 2005). For example, management tools such as TQM have been highly successful in Japanese companies, but have encountered problems in America and Europe. Dickson et al. (1999) note that in the first decade since the development of BSC, it was "strange that no Japanese enterprise [had used] it, as Japan is always in the leading position of modern management". BSC was developed under American conditions and does not reflect the influence of different cultures. Statistics show that the companies implementing it are almost all located in North America and Europe, while none is from Asia. Cultural factors tend to restrict wider application. It is the opinion of this researcher that it is very difficult to identify the appropriate context for BSC implementation.

5.5.1 Critical Review of the BSC Model and Process

Whatever the validity of such criticisms, large numbers of studies have indicated that the BSC concept has been widely adopted and employed in large organisations across Europe and the United States. These organisations have expected the BSC to lead strategy development, implementation and communication. Beiman and Johnson (2007) have estimated that more than 70% of the Fortune 500 companies in the US

use BSC. A survey of over 150 organisations conducted by Lawson et al. (2003) found that up to two-thirds of them concurred on significant benefits having been realized from using the BSC.

While there have been a large number of cases of successful BSC implementation, however, there have been many instances of failure as well (Johnsen, 2004; Lawson et al., 2004; Marr and Adams, 2004; Angel and Rampersad, 2005; Kettunen and Kantola, 2005). For instance, a study done by the Hackett group (2004) suggests that although almost two-thirds of typical companies had some sort of BSC programme in place or in the process of development, only 17% of all these organizations had reached the development stage of mature BSC that relied on a mix of financial and operational metrics. According to the study, world-class companies were 159% more likely to have achieved this level of BSC development, although even in these companies, only about 44% had achieved this level. It can be concluded from this that most companies face significant difficulties in realizing the full development of BSC.

The mere implementation of BSC as a strategic management tool cannot guarantee success; without a deep and comprehensive understanding of the system, there is every chance that the results will be negative. As is clear from Table 5.2, about 25% of the respondents to a survey conducted by Towers Perrin (1996) faced major problems with the extra time and expense needed to implement and operate the BSC, while 44% encountered major problems in developing the extensive information systems that were needed to support it. In addition, Phillips and Louvieris (2005) contends that using a large number of performance measures may result in managers distributing their efforts over too many objectives, thus reducing the effectiveness of the incentive plan. This argument is supported by the results of the Towers Perrin (1996) survey, 43% of whose respondents stated that the dilution of the overall impact of the new measurement systems due to the large number of measures in the BSC was a major problem.

Table 5.2 Reported problems in implementing BSC

Problems	Not a Problem				Major Problem
	1	2	3	4	5
▪ Difficult to evaluate relative importance of measures	2%	25%	35%	29%	9%
▪ Time and expense involved	7	25	43	20	5
▪ Requires quantification of qualitative data	7	18	30	36	9
▪ Large number of measures may dilute overall impact	9	23	25	36	7
▪ Difficult to decompose goals for lower levels in organization	12	18	36	25	9
▪ Requires a highly developed information system	13	18	25	35	9

Source: Larcker et al. (1997)

Gentia (1998) lists specific attributes that the BSC must have as a management model (Table 5.3), which links the overall BSC framework with management processes and leads towards strategic feedback and learning.

Table 5.3 Attributes for supporting BSC management model

Balanced Scorecard framwork
- Strategic objective-based.
- Vision statements.
- Cascades and connects multiple scorecards.
- Strategic themes.
- Links objectives, measures and initiatives.
- Comparison of measures to targets.

Management Process
- Subjective indicator reporting.
- Subjective written assessments.
- Scorecard management discipline i.e. individualised reminders for necessary input.
- Initiative management.
- Cascades to individuals' goals/performance.
- Accountability.

Strategic feedback and learing
- Performance at a glance.
- Reporting on measures of four perspectives.
- Support for communication/commentary.
- Linkage of view with performance indicators.

Source: Gentia Software (1998)

Various authors present methodological approaches to BSC that differ greatly in terms of sequence, content and number of implementation steps or phases, and which are suitable for specific organisations and market segments rather than providing generalised applicability (Papalexandris et al., 2005). For example, Ahn (2001) uses a

six-phase approach; Brewer (2002) proposes a four-step Value Dynamics Framework for translating strategy into measures; Letza (1996) uses a six-step BSC methodology; and Lohman et al. (2004) propose a nine-step approach to BSC implementation.

Papalexandris et al. (2005) propose an interesting methodological approach to preparing, designing, implementing and rolling out the BSC, based on a results orientation, with emphasis on short, distinct phases with manageable outcomes. It is developed along two main axes, as shown in Figure 5.4: the horizontal axis (project phases) designates the chronological succession of project activities and comprises six distinct project phases. The vertical axis (activity groups) consists of different groups of activities (with two main activity groups – core and supporting activities), defined by the different skill sets/knowledge needed to perform a given activity. In spite of the richness of the content, this model has not yet been tested.

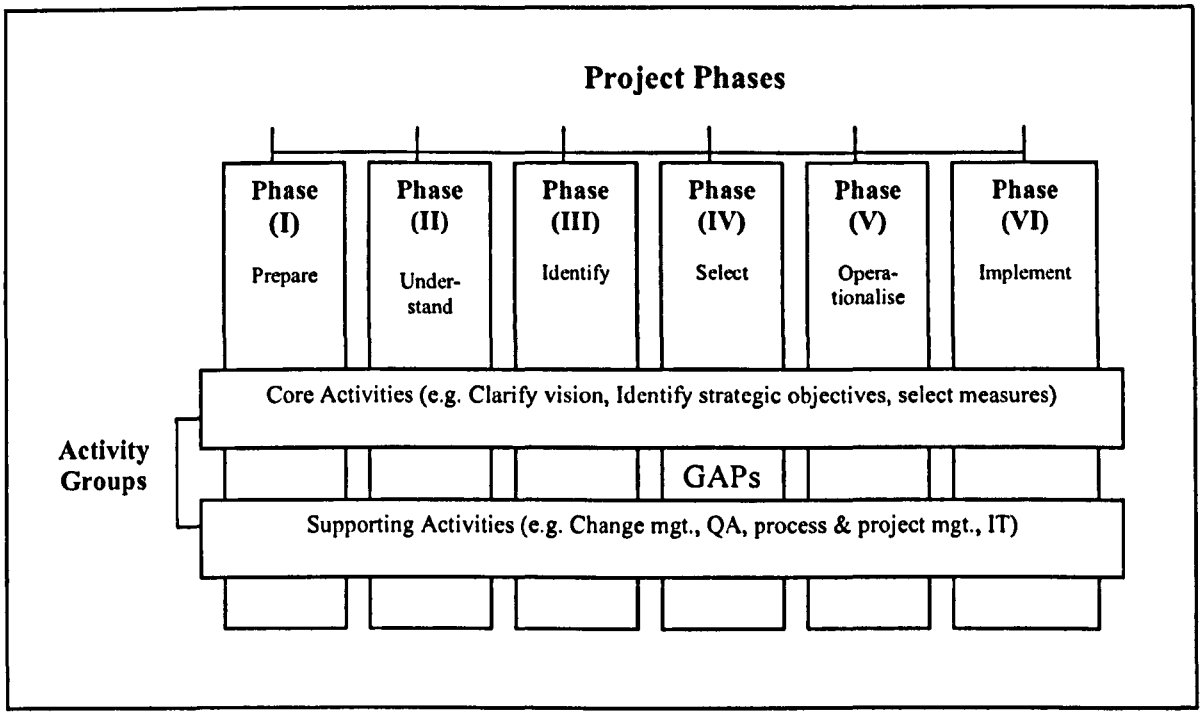


Figure 5.4 BSC project implementation approach

Source: Papalexandris et al. (2005)

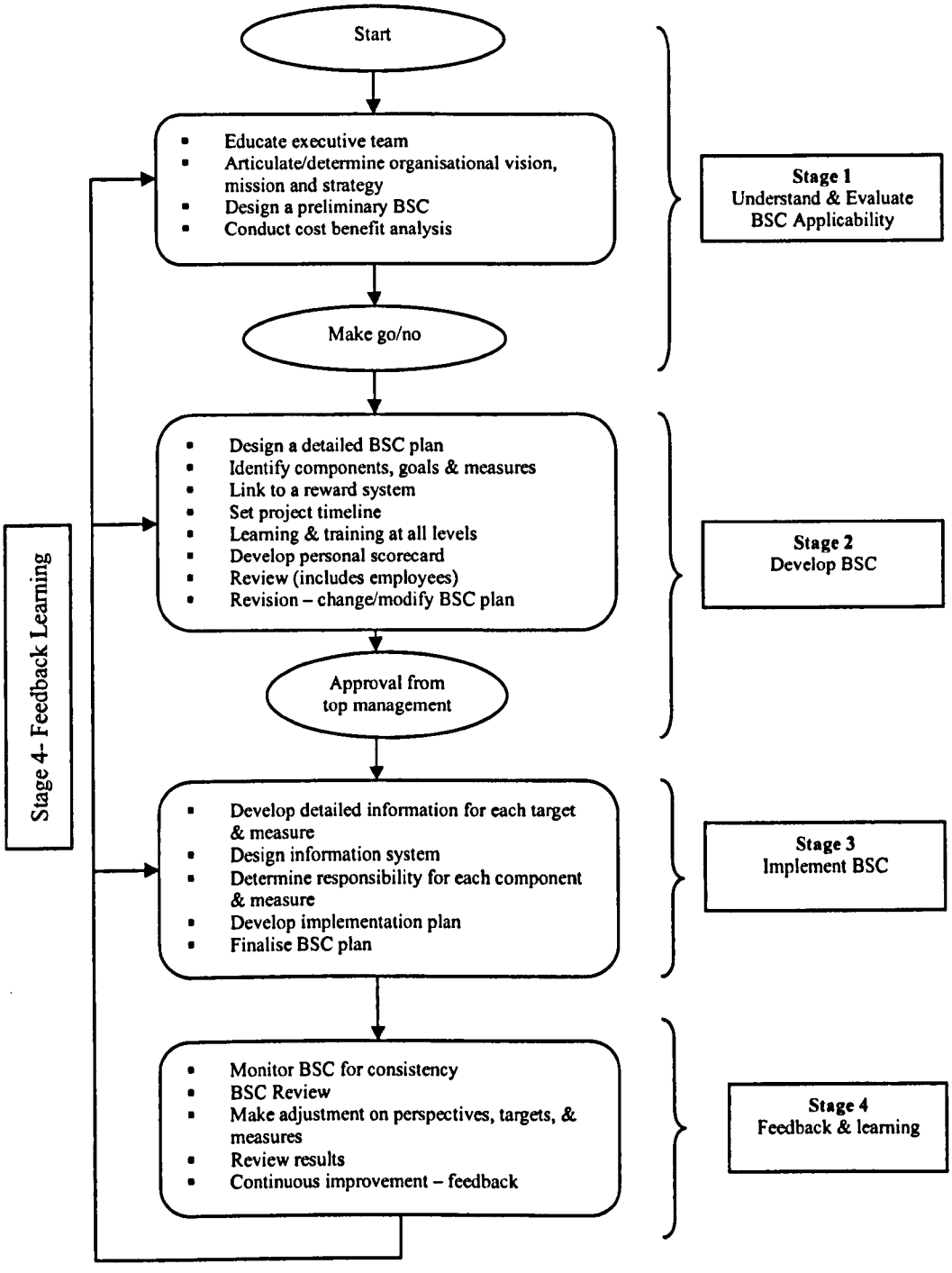


Figure 5.5 Framework of BSC Implementation

Source: Doran et al. (2002)

Doran et al.'s (2002) framework for BSC implementation (Figure 5.5) is one of the most comprehensive approaches, albeit not a holistic one, to BSC project implementation. There is no mention of the factors that may be required to sustain the success of the implementation and this framework is also yet to be tested.

One the major obstacles to reaching consensus on deciding the factors that support the process of managing through measures is the sheer range of approaches used by various authors. For instance, some are keen on specific aspects of the design phase of the system, whereas others are more interested in major aspects of the implementation phase. The overall use of measurement systems is largely ignored by authors and the lack of empirical studies of performance measurement and BSC is another block to identifying the relevant factors (Franco and Bourne, 2003).

5.6 Critical Success Factors

In the context of the difficulties discussed above, CSFs can be viewed as alternative means of choosing non-financial indicators.

5.6.1 Vision, Mission, Values and Strategy

The organisation has to commence its BSC programme by linking it with its vision, mission, values and strategy. The following sections will discuss the linkage between these and the BSC.

According to Michalska (2005), vision denotes what the organisation desires to become. The vision statement should be easy for everyone within the organisation to understand and should serve to extend its capabilities and improve how it sees itself. The vision makes explicit the form and direction of the organisation's future.

Olve et al. (1999) list a number of factors which need to be considered in order to establish the vision (see Figure 5.6), while Niven (2002) describes some of the characteristics that an effective vision statement should have: it should make concise appeals to all stakeholders and be consistent with mission and values, verifiable, feasible and inspirational.

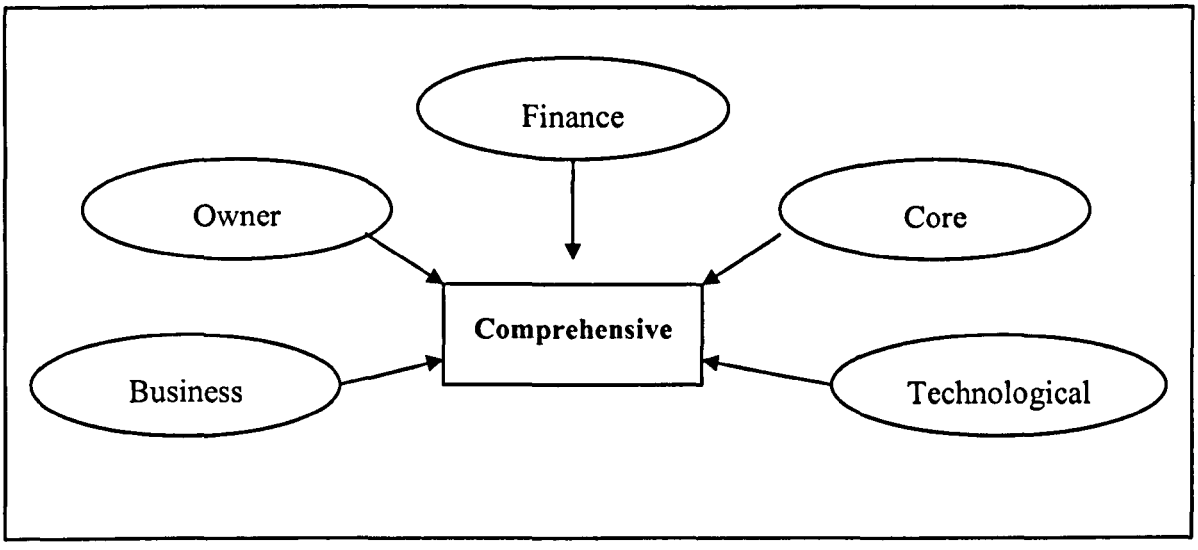


Figure 5.6 Some factors to be considered in establishing vision

Source: Olve et al. (1999)

A mission statement serves to define the raison d'être of the organisation (Kotter, 1996; Olve, 1999; Niven, 2002; Brewer et al., 2004; Mukhopadhyay, 2005). Phillips (2004) suggests that it is a key element in the motivation of employees, as it presents a sense of priority to them. According to Debnath et al. (2004), a mission statement should answer the following questions:

- What needs does the organisation address? Or, what is the purpose of the business?
- How does the business address those needs?
- What are the principles and beliefs influencing the way the company addresses these needs?

An organization's values denotes the core principles within its culture, including what drives members' priorities and how they act within the organisation (Akkermans and van Oorschot, 2005; Angel and Rampersad, 2005). The values define the behaviour of employees towards each other and the organisation's stance towards external and internal customers and suppliers (Niven, 2002). Similarly, Eagle et al. (2004) argue that for organizations to be effective, they should identify and develop a clear, concise and shared set of values/beliefs, priorities and direction, so that everyone within the

organization can understand them and can thus contribute to them. Once the values have been defined, they have an impact on all aspects of the organisation.

As Bremser and Barsky (2004) have convincingly argued, the BSC represents the best means of disseminating the organisation's values, reviewing them over time and aligning them at all levels within the organisation. It may also be possible, using the BSC, to measure the extent to which the organisation has implemented its values (Niven, 2002).

The BSC is largely concerned with the implementation of existing strategies. Although Kaplan and Norton (1996c, 2001a) claim that their view of strategy was conceived independently of Porter's framework, the two conceptions are remarkably similar. Karathanos and Karathanos (2005) claim that each measure of a BSC becomes embedded in a chain of causal logic connecting the desired outcomes of the strategy with the drivers that will lead to them. Also, according to Niven (2002),

> "*The BSC provides the framework for an organisation to move from deciding to live their strategy to doing it. The Scorecard describes the strategy, breaking it down into its component parts through the objectives and measures chosen in each of the four perspectives*".

Kaplan and Norton (2004a) argue that "without a comprehensive description of a strategy, executives cannot easily communicate the strategy among themselves or to their employees". They also contended (2004b) that alignment was essential for executives to implement their new strategies in the prevailing dynamic environment of global competition, deregulation, advanced technology and competitive advantage derived from intangible assets such as human and information capital. Consequently, Kaplan and Norton produced the so-called *strategy map* (Brewer et al., 2004; Gumbus and Wilson, 2004; Lawson et al., 2004), which they viewed as "a visual representation of the linked components of an organisation's strategy, as big an insight to executives as the BSC itself" (Kaplan and Norton, 2004a).

The strategy map (Figure 5.7), a description of the process of the transformation of intangible assets into tangible customer and financial outcomes, provides executives

with a framework for describing and managing strategy. It considers the financial objectives as the final goal, with the strategic objectives from each of the four perspectives connected to each other by arrows indicating links. Thus, it shows all objectives being linked to the financial performance. The aim of the BSC is to align the realised strategy with the planned one as closely as possible. This is accomplished through the proactive management of the implementation process, where the strategy map provides sub-goals through a chain of strategy hypotheses (Kaplan and Norton, 2004b).

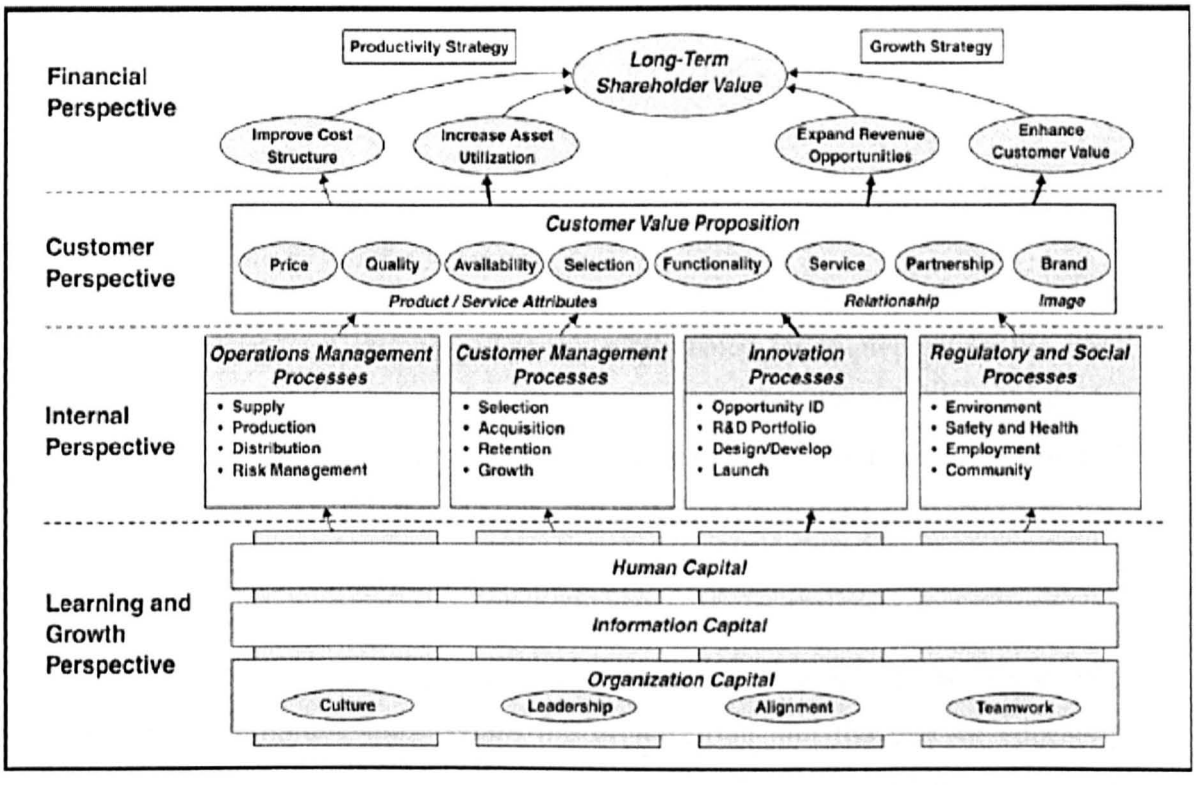


Figure 5.7 Strategy Map

Source: Kaplan and Norton (2004b)

5.6.2 Executive and Management Commitment

For a project to be successful, executive support and commitment are essential. Managers must prioritise BSC implementation so as to garner internal commitment and allocate valuable resources to the implementation effort. In order to be successful in this, they must promote awareness of the BSC system through the communication

of its benefits to stakeholders and employees (Epstein and Wisner, 2001; Akkermans and van Oorschot, 2005).

The important role that executives and senior managers play in BSC implementation has been repeatedly emphasised in the literature reporting case studies of implementation and the work of BSC experts (Lingle and Schiemann, 1996; Kaplan and Norton, 2001a; De Waal, 2002; Doran et al., 2002; Ho and McKay, 2002; Kennerley and Neely, 2002; Andersen et al., 2003; Carmona and Grönlund, 2003; Achterbergh et al., 2005; Brewer et al., 2005; Wang, 2005; Wells and Weiner, 2005).

5.6.3 Planning for Balanced Scorecard

An organisation needs a rationale for choosing BSC. According to Niven (2002), "for positive change to occur, the Scorecard must be embedded in [the organisation's] management systems, becoming the cornerstone for management analysis, support, and decision making". A number of possible rationales for implementing the BSC programme are outlined in Figure 5.8. Explicating the objective and the rationale for embarking on the BSC programme will help towards securing its implementation and will also be helpful in sustaining it in the long term (Akkermans and van Oorschot, 2005; Wells and Weiner, 2005).

Valiris et al. (2005) argue that finding a consensus on the objectives of the BSC facilitates their communication within the organization and the task of educating employees about them. A clear and explicit objective for BSC implementation also goes some way to supporting the future linking of the BSC to management processes such as budgeting, compensation and management reporting (Niven, 2002).

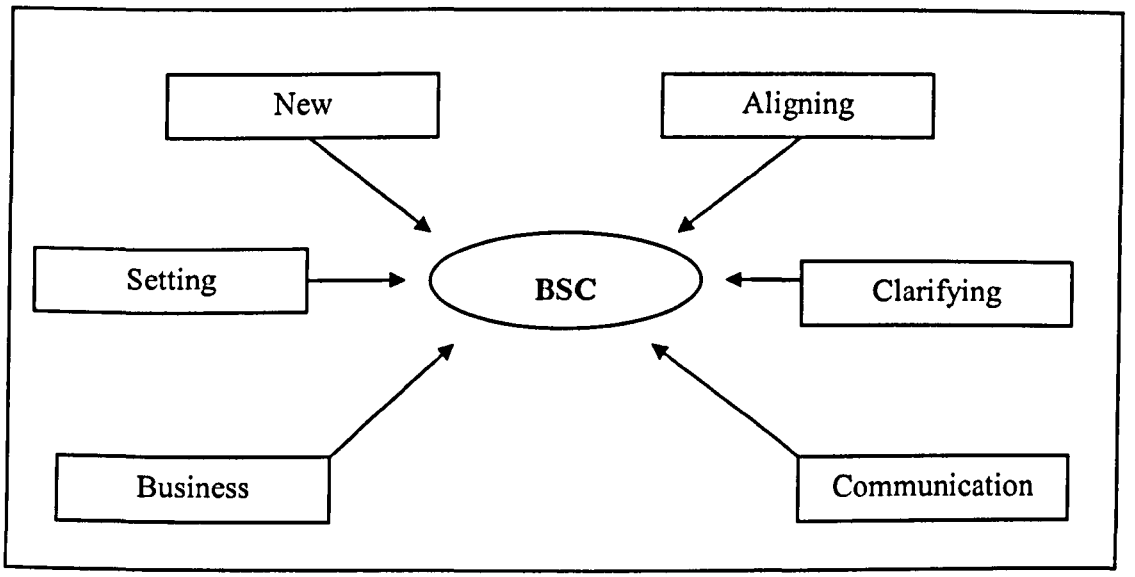


Figure 5.8 Rationales for BSC

Source: Niven (2002)

5.6.3.1 Choosing a Unit for the First BSC

According to Kaplan and Norton (1996b), BSC is a simple tool, although certainly not simplistic. Hence, it is critical that considerable thought be given to choosing the right unit in which to begin implementation. The size of the organisation may influence the decision to a large extent (Mohamed, 2003; Radnor and Lovell, 2003; Lawson et al., 2004; Mouritsen et al., 2005). Niven (2002) suggests that it is better for a large organisation to develop the BSC at the top, by developing a high-level corporate set of measures. Alternatively, they could begin at the business unit or even shared service unit level (human resources, information technology, etc). Niven (2002) argues that the selection of an appropriate organisational unit for the first BSC is influenced by several elements, as shown in Figure 5.9.

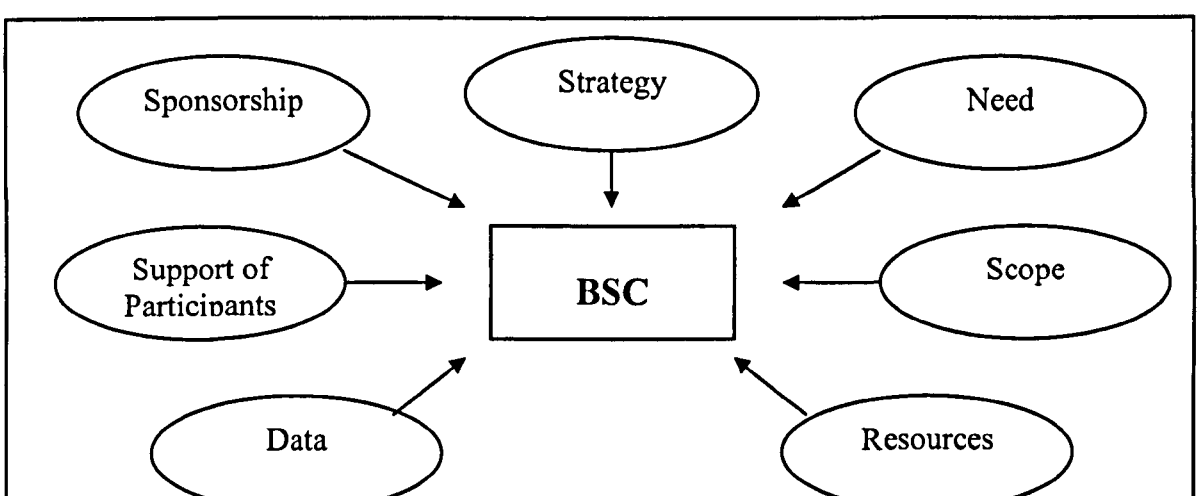


Figure 5.9 Seven criteria for choosing where to begin BSC

Source: Adapted from Niven (2002)

5.6.3.2 Stimulating Culture

For many researchers, the cultural factor is crucial in helping organizations fulfil their BSC (Vaivio and Jarvenpaa, 2002; Self, 2004; Vokurka, 2004; Akkermans and van Oorschot, 2005; Brewer et al., 2005; Evans, 2005; Kaplan and Norton, 2005; Wu, 2005). As Sureshchandar et al. (2001) explain, although tangibles such as size, number of employees, return on expenditure, ROI and stock price are vital characteristics of an organisation's business performance, intangibles such as the culture of the organization are equally—or even more—significant in these terms. However, the cultural factor is rather underestimated and often ignored by practitioners (Deming, 1986).

According to Antony et al. (2002), an open culture is crucial for enhancing communication from top-to-bottom, bottom-to-top, and across the departments, through which the information will be shared by all staff.

However, organisations may be faced with many cultural issues when implementing any new system. Adebanjo and Kehoe (1998) identify seven dimensions of organisational culture through which to analyse and evaluate cultural problems:

1. Senior management leadership.

2. Employee empowerment and involvement.
3. Teamwork.
4. Customer focus.
5. Partnership with suppliers.
6. Effectiveness of chief executive.
7. Open corporate culture.

5.6.3.3 Shareholders, Corporate Governance and BSC

There is a view of corporate governance as comprising both structure and relationships, or "a set of relationships between a company's management, its Board of directors, shareholders and other stakeholders" (OECD, 1999). It is frequently seen as the processes by which organisations are directed, controlled and held accountable. Its fundamental functions include "the transparency of corporate structure and operations; the implementation of effective risk management and internal control systems; the accountability of the Board to stakeholders through, for instance, clear and timely disclosure; and responsibility to society" (ANAO, 1999).

The issue of corporate governance is particularly critical in the case of SOEs, which must create an environment of high-level transparency in the relationship between the state and the board of directors, improve monitoring and reporting, adopt an explicit and well-defined set of rules for the appointment of directors, and have clearly defined corporate goals (OECD, 1998). However, corporate governance in SOEs is rather complex, as its effectiveness is influenced by state ownership, political objectives and structures, bureaucracy within the civil service, and the monitoring arrangements for state enterprises (Estrin, 1998).

The BSC can play an important role in organisations' attempts at improving their corporate governance systems. It is a management tool providing stakeholders with a comprehensive measure of an organisation's progress towards the achievement of its strategic goals. According to Dye (2003), the BSC helps it to accomplish its internal and external accountability needs. He argues that the BSC approach influences organisations to focus on "setting measurable governance objectives, and to report on

their success in achieving these objectives". Colman, (2003) adds that "Boards that implement the BSC will also benefit from an enhanced ability to clearly communicate performance information to executives, employees and the investment community".

5.6.3.4 Transfer Pricing

Transfer pricing has been developed in response to decentralised organisational structures where responsibility centres trade amongst themselves. The transfer of products and services between business units is usual in organisations having a high degree of vertical integration. An ideal transfer pricing policy provides a realistic performance evaluation, helping to motivate managers to perform well and evaluating them by means of measures that are within their range of control (Cravens and Shearon, 1996).

5.6.3.5 The BSC Team

Katzenbach and Smith (1994) define a team as a "small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable".

For the successful building and implementation of BSC, forming a team is crucial. Only a team effort can accomplish a well-structured BSC, as there is no single individual within an organisation who possesses all of the knowledge of organisational strategy, internal processes, markets, vision, time, etc, to produce and implement a durable BSC (Monczewski, 2003).

The roles and responsibilities of the BSC team are summarised in Table 5.4.

Table 5.4 BSC team roles and responsibilities

Role	Responsibilities
Executive sponsor	▪ Assumes ownership for BSC project ▪ Provides background information to team on strategy and methodology ▪ Maintains communication with senior management ▪ Commits resources (both human and financial) to team ▪ Provides support and enthusiasm for BSC throughout organization
BSC champion	▪ Coordinates meetings; plans, tracks, and reports team results to all audiences ▪ Provides thought leadership on BSC methodology to team ▪ Ensures all relevant background material available to team ▪ Provides feedback to executive sponsor and senior management ▪ Facilitates development of an effective team through coaching and support
Team members	▪ Provide expert knowledge of business unit or functional operations ▪ Inform and influence their respective senior executives ▪ Act as BSC ambassadors within their unit or department ▪ Act in best interests of business as a whole
Organisational change expert	▪ Increases awareness of organisational change issues ▪ Investigates change-related issues affecting BSC project ▪ Works with team to produce solutions mitigating change-related risks

Source: Niven (2002)

5.6.3.6 Communicating BSC

Kaplan and Norton (2001c) emphasize that "without credible communication, and a lot of it, employees' hearts and minds are never captured". For most new projects to be a success they have to be communicated to the employees. Valiris et al. (2005) argue that a comprehensive and sustainable plan to communicate the BSC to the employees has to be set up by the organization. BSC implementation will be eased if a well-structured communication plan is in place. In addition to being comprehensive, this should also be periodic (see Table 5.5). Different forms of communication devices like executive announcements, videos, team meetings, brochures and newsletters can be used to begin the BSC project (Kaplan and Norton, 1996a; Doran et al., 2002; Chand et al., 2005; Evans, 2005).

Table 5.5 Comprehensive communications programme

	Communication Vehicle					
Target Audience	Strategic Dialogue	Detailed monthly reports	Review Meeting	Kick-off/ Leadership road show	Video	Periodic update Brochure/ newsletter
Corporate	√		Semi-annually		√	Quarterly
SBU Leadership Team	Semi-annually	√	Monthly meeting Year end	Kick-off	√	Monthly
Directors	Semi-annually	√	Monthly meeting	Kick-off for directors	√	Monthly
Stores		As needed	As needed	Kick-off for group leaders. Road show by group leaders	√	Monthly
Distribution		As needed	As needed	√	√	Monthly
Support Groups ▪ Real Estate ▪ Store Planning ▪ Key Suppliers	As needed	√ √		√	√	As needed

Source: Kaplan and Norton (1996c)

5.6.4 Developing BSC

5.6.4.1 Training

Essentially, the BSC project involves the adoption of new perspectives and processes, while dealing with innovation and change. This change could be facilitated through employees' training and education initiatives, providing them with the knowledge and skills that are essential in adapting to the change process (Zelman et al., 2003; Andersen et al., 2004; Davis and Albright, 2004; Karathanos and Karathanos, 2005; Urrutia and Eriksen, 2005).

5.6.4.2 Choosing BSC Perspectives

Although the four BSC perspectives advocated by Kaplan and Norton (1996c) have been supported as being appropriate for most companies and industries, they should not be considered as a universal template. Before starting on its BSC programme, an

organisation must decide on the crucial issue of the number of perspectives required. Their selection should be based on what is essential to execute the strategy and to create a competitive advantage for the organisation (Niven, 2002).

5.6.4.3 Setting Objectives, Measures and Targets for BSC

Niven (2002) defines objective statements as concise statements of the specifics that the organisation needs to perform well. The objectives can thus be seen as a tool connecting the organisation's strategy and its measurements.

After the strategic objectives have been determined, the organisation needs to set the measurements for each perspective of the BSC. According to Niven (2002), performance measurement is "a tool we use to determine whether we are meeting our objective and moving toward the successful implementation of our strategy". He adds that BSC measurements must strike a balance between different aspects, such as: financial and non financial indicators of success of success, internal and external constituents of organisation, and lag and lead indicators of performance.

Although financial measurements have many shortcomings, they are necessary for an efficient, well designed BSC (Misiaszek and Oriot, 2002; Gumbus and Wilson, 2004; Chand et al., 2005; Dilla and Steinbart, 2005). As Kaplan and Norton (1996c) note, "the BSC retains the financial perspective since financial measures are valuable in summarising the readily measurable economic consequences of actions already taken". Furthermore, Davis and Albright (2004) contend that financial performance measures are indicators of the success of the organisation's strategy implementation in terms of improvement in profit figures. They are also indicators of the success of the strategic choices made in the other perspectives. According to Zelman et al. (2003), if important improvements are made in their operations, the financial aspect will take care of itself.

Carmona and Grönlund (2003) argue that, as is the case with all other measures in the BSC, financial measurements should be derived from the organisation's strategy.

According to Niven (2002), most organizations, in practice, select financial measures related to three areas: growth, profitability and value creation. Various methods of calculating profitability, such as gross margin, net value and profit as a percentage of sales, have been developed by traditional accounting systems (Amaratunga, 2001). Alternatively, many organization use economic value added (EVA), which is a measure of value creation for the shareholders. As traditional accounting results are indicators of past actions, most of the financial measurements which rely on them are lagging indicators (Kaplan and Norton, 2004a; Urrutia and Eriksen, 2005).

Table 5.6 lists some examples of frequently used financial measurements.

Table 5.6 Commonly Used Financial Measurements

▪ Total assets ▪ Total assets/employee ▪ Revenues/total assets ▪ Revenues from new products or business operations ▪ Profits/total assets ▪ Revenue/employee ▪ Profits from new products or products or business operations ▪ Profits/employee	▪ Return on net assets ▪ Value added/employee ▪ Contribution/ revenue, or contribution margin ▪ Contribution/employee ▪ Cash flow ▪ Shareholder equity/total assts, or solvency ▪ Return on investment ▪ Total costs ▪ Market value

Source: Olve et al. (1999)

Customers are an organisation's lifeblood; its existence depends on their purchases and payments. This view of the customer is at the centre of an organisation's ability to provide quality goods and services, delivery on time, and overall customer services and satisfaction (Zelman et al., 2003; Brewer et al., 2004; Van der Meer and Vosselman, 2004; Neely et al., 2005; Wang, 2005).

Kaplan and Norton (2000a) believe that many organisations have a customer-focused mission, and top management has started giving more heed to the organisation's performance from the customers' perspective. However, Brown (1996) contends that "this is an area of weakness in many organisations' scorecard. Many have only just now begun to measure customer satisfaction, and most are doing it in a very rudimentary fashion".

Dilla and Steinbart (2005) argue that the organization must first identify its target customers and the value proposition in serving them, when selecting the measures for the customer perspective of the BSC. However, as Niven (2002) has suggested, "The organisation must develop performance drivers that will lead to improvement in these 'lag' indicators of customer success". Table 5.7 lists some examples of frequently used customer measurements.

Table 5.7 Commonly Used Customer Measurements

▪ Number of customers	▪ Number of visits to customer (No.)
▪ Market share (%)	▪ Number of complaints (No.)
▪ Annual sales/customers ($)	▪ Marketing expenses
▪ Customers lost (No. or %)	▪ Brand-image index (%)
▪ Average time spent on customer relations (No.)	▪ Customer rating (%)
	▪ Customer visits to company (No.)
▪ Customers/employee (No. or %)	▪ Average time from customer contact to sales response (No.)
▪ Sales closed/sales contacts	
▪ Satisfied-customer index (%)	▪ Service expense / customer / year (%)
▪ Customer-loyalty index	▪ Cost/customer ($)

Source: Olve et al. (1999)

In terms of the internal process perspective of the BSC, the main process must be identified in which the organisation has to excel, so as to deliver the value that attracts customers in a specific market, and to meet shareholder expectations of reasonable financial returns (Pizzini et al. 2002; Sandkuhl et al., 2003; Laitinen, 2005).

For Amaratunga et al. (2001), "this perspective reveals a fundamental difference between the traditional and BSC approach to performance measurements". Whereas the focus of traditional approaches has been the monitoring and improvement of the already existing business processes, the BSC approach has its focus on the identification of entirely new processes in which the organisation needs to excel in order to fulfil customer and financial objectives.

According to Brown (1996), "many organisations focus only on measuring the outputs rather that the processes used to produce those outputs". Hence, there should be an awareness of the way results are achieved on the part of organisations. It is the

processes that provide organisations with the data required for the improvement and control of products and services. Process data can be crucial in cases where there is a problem with a product or service, providing information on its cause (Letza, 1996). According to Anand et al. (2005), organizations always measure the internal process perspective by identifying customer needs then justifying internal processes accordingly; and they should be aware that customer needs do not remain static but change over time. Niven (2002) suggests that measuring the organisation's supply chain is the best method by which to measure internal processes, whereas Brown (1996) argues for the measurement of cycle time, employee productivity and safety metrics. Table 5.8 lists some examples of frequently used internal business process measurements.

Table 5.8 Commonly Used Internal Business Measurements

▪ Administrative expenses / total revenue (%)	▪ Emissions from production into environment (No)
▪ Processing time, out-payments (No.)	▪ Cost of administrative error/ management revenue (%)
▪ On-time delivery (%)	▪ Contract field without error (No.)
▪ Average lead time (No.)	▪ Administrative expense/ employee ($)
▪ Lead time, product development (No.)	▪ Inventory turnover (No.)
▪ Lead time, production (No.)	▪ Improvement in productivity (%)
▪ Average time for decision-making (No.)	
▪ IT capacity/ employee (No.)	
▪ Change in IT inventory ($ or %)	

Source: Olve et al. (1999)

The last perspective to be developed in the BSC is usually that of learning and growth, which according to Gumbus and Wilson (2004), "identifies the infrastructure that the organisation must build to create long-term growth and improvement".

Table 5.9 Commonly Used Learning and Growth Measurements

▪ R & D expenses ($) ▪ R& D expense / total expenses (%) ▪ IT development expense/ IT expense (%) ▪ Hours, R & D (%) ▪ R & D resources/ total resources (%) ▪ Investment in training / customers (No.) ▪ Investment in research ($) ▪ Investment in new product support and training ($) ▪ Patents pending (No.) ▪ Direct communications to customers/ year (No.)	▪ Competence development expense / employee ($) ▪ Satisfied-employee index (No.) ▪ Marketing expense / customer ($) ▪ Employee's view (empowerment index) (No.) ▪ Share of employees below age X (%) ▪ Non-product-related expenses / customer / year ($) ▪ Ratio of new products (less than X years old) to full company catalogue (%) ▪ Suggested improvements / employee ($)

Source: Olve et al. (1999)

Niven (2002) assigns to this perspective the role of the root of the BSC tree, calling it the foundation of the entire BSC house. Once the organisation has identified the measures from the customer and internal process perspectives, the measures applicable to the learning and growth perspective can serve in closing the gaps, if any, between the current organisational infrastructure, employee skills and the information system, and levels required in terms of results, thus ensuring satisfactory performance in the future (Brown, 1996). Table 5.9 lists some examples of frequently used learning and growth measurements.

Without a set of targets to motivate employees and encourage exceptional performance, the BSC programme will be imperfect. Targets give meaning to the results of the measurement process (Misiaszek and Oriot, 2002; Niven, 2002; Radnor and Lovell, 2003; Sandkuhl et al., 2003; Wongrassamee et al., 2003; Anand et al., 2005; Smith and Kim, 2005).

Evans (2005) contends that organizations should determine both short- and long-term targets, checking their actions frequently and taking any necessary corrective action early. There are several sources of information from which the organisation can create

its targets. Niven (2002) lists a number of these, such as employees, executive interviews, internal and external assessment, industry averages and benchmarking.

5.6.4.4 Final BSC Measures

The number of measures should be narrowed down by the BSC team to those that may help the organization in executing its strategy. Niven (2002) lists many criteria that may assist the organisation in selecting adequate measures for BSC, such as links to strategy, relevancy and whether they are quantitative and easy to understand. It is usually sufficient to have between 20 and 30 prime measures in a BSC (Kaplan and Norton, 2001a; Lawson et al., 2003; Mohamed, 2003).

5.6.4.5 Cause-and-effect linkage

The cause and effect in the BSC has been introduced (section 5.4.2). There is an implicit assumption of causal relationships among the four BSC perspectives; those assumed by Kaplan and Norton (1996a) are shown in Figure 5.10. For instance, if the decision is made that there is a need for improvement in employee training or the following-up of employee suggestions, when the next evaluation takes place, it can be ascertained by making observations whether improvement has really occurred in this perspective. As can be seen in the diagram, learning and growth are at the bottom, since any improvements made in this perspective feed up into the measures of the business processes. In a similar way, the measures of the business processes become the drivers in the customer perspective. The improvements made in all these measures finally feed in as the drivers of financial success.

Radnor and Lovell (2003) suggest that a well-designed BSC should reveal the organisation's strategy through the objectives and measures that have been chosen and that these measures should be linked in a causal chain. Similarly, Niven (2002) argues that the relationships between measures should be made explicit so as to enable them to be monitored, managed and validated. Thus, BSC measures are linked by a series of 'if-then' statements. For example, if the organisation intensifies training, then cycle times will be lowered; if cycle time is lower, then this will result in increased loyalty; and if loyalty increases, then revenue will also increase (Brown, 1996). Kettunen and Kantola (2005) describe the four BSC perspectives and their relationships using the

metaphor of a tree: learning and growth are like the roots, leading through the trunk of internal processes to the branches of customer results and eventually to the leaves of financial returns.

However, it should be noted from the figure that no feedback mechanism exists in this cause-and-effect model. All the arrows point in one direction, implying that these are one-way processes and that no learning takes place.

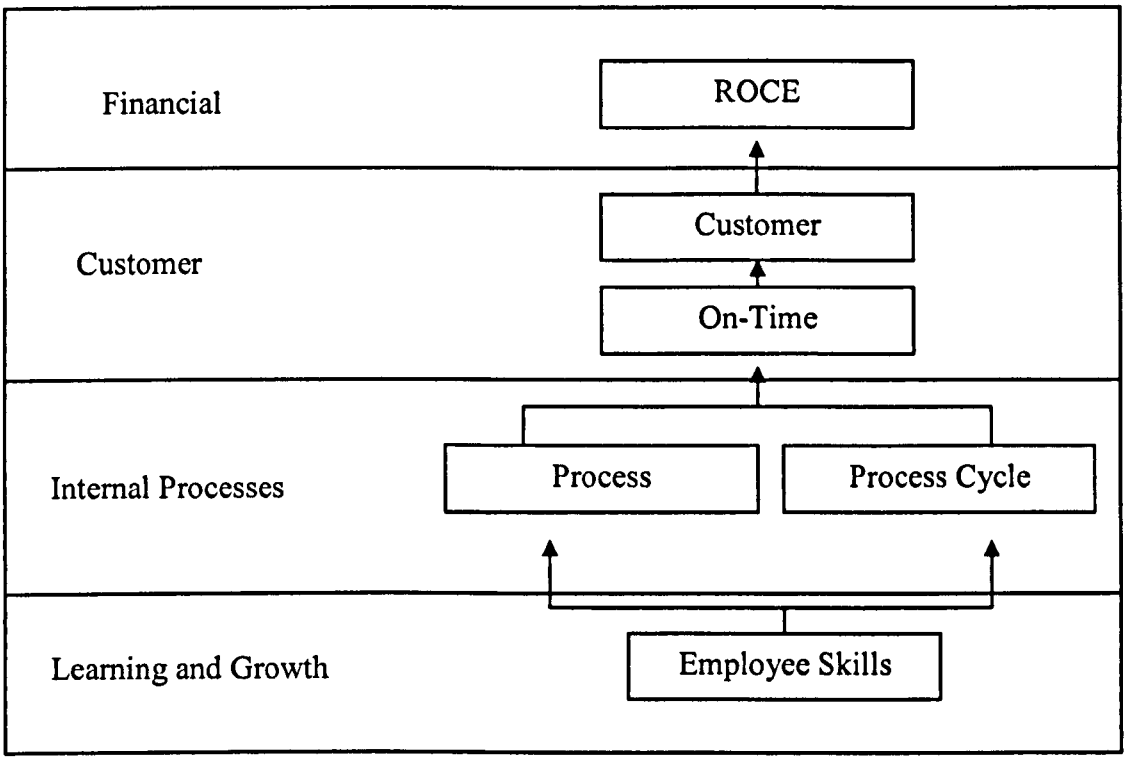


Figure 5.10 Cause-and-effect relationships

Source: Kaplan and Norton (1996c)

5.6.4.6 Integration of BSC

Kaplan and Norton (1997) strongly argue that the BSC must be integrated in the management system. Notwithstanding its strengths, the BSC cannot stand alone. Although it is efficient in alerting managers when something goes wrong, it fails to provide solutions. The organisation does not always reap the benefits of BSC implementation until after the identified problems have been solved (Pizzini et al., 2002; Leahy, 2004; Brewer et al., 2005; Yu and Wang, 2005). Arguing that the BSC should be firmly integrated and communicated to all the members of the organization,

Wang (2005) suggests that the organisational integration phase should include the following tasks:

- Designation of people responsible for measuring data and their empowerment.
- Explanation of objectives of BSC implementation to the employees.
- Re-engineering management and strategy processes.
- Re-engineering reporting processes.

According to Marr and Neely (2003), the BSC system should be utilised in management processes such as 'monthly review' and 'quarterly business review'. Most BSC data, however, are obtained by operations systems such as financial reporting, enterprise resource planning, or customer relationship management systems. Hence, it is important for the BSC to be integrated with operational IT systems (Sandkuhl et al., 2003; Van Grembergen and De Haes, 2005).

5.6.4.7 Key Performance Indicators

KPIs are quantifiable measurements, decided on beforehand and reflecting the CSFs of an organisation. They usually consist of a combination of reports, spreadsheets or charts (Kaplan and Norton, 2004b; Vokurka, 2004; Wells and Weiner, 2005).

As Beatham et al. (2002) argue, BSC translates an organisation's strategy into a comprehensive set of KPIs (see Figure 5.11) which measure performance linked to corporate goals by tracking performance across the BSC perspectives. By revealing the cause-and-effect relationships between KPIs, the BSC enables managers to have a better understanding of how their decisions affect not only their direct areas of responsibility, but also other departments and the overall organisational strategy (Reh, 2003). Indeed, as Kaplan and Norton (2001c) warn, "unless the link to strategy has been clearly thought through [...] the KPI scorecard can be a dangerous illusion".

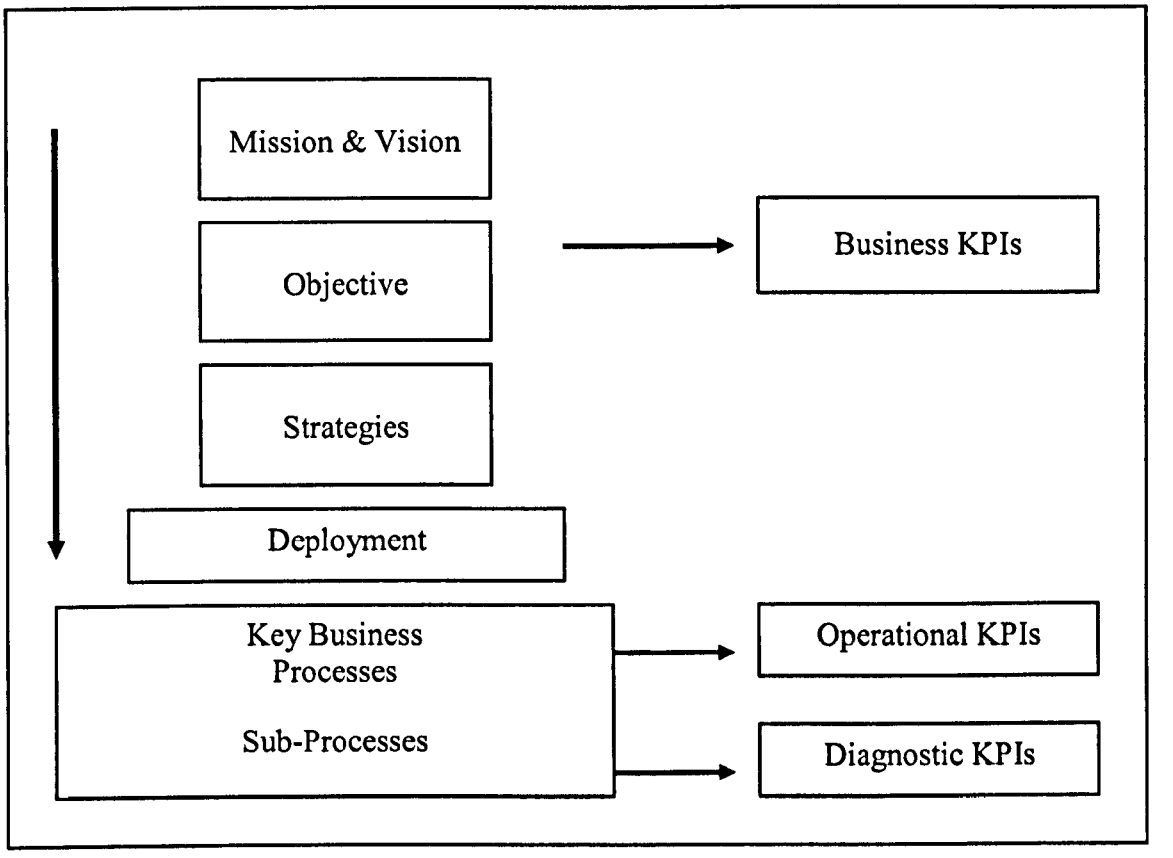


Figure 5.11 Establishing KPIs

Source: Beatham et al. (2002)

5.6.5 BSC Implementation

Continuous and robust support from the top management is required for the implementation of BSC. As many recent studies have indicated, the implementation stage is the most crucial, being the one where most of the problems occur (Doran et al, 2002; Vaivio and Jarvenpaa, 2002; Johnsen, 2004; Brewer et al., 2005; Chand et al., 2005; Evans, 2005). When such problems occur, time is required to resolve them, so management has to be patient and not try to hasten the results (Fogg, 1997). It is imperative, therefore, that the organisation lay out a plan for BSC implementation and make efforts to provide its team with all the resources required. The following sections highlight some critical steps that the organisation should take to ensure implementation.

5.6.5.1 Development of an Implementation Plan

Given the crucial nature of the BSC implementation phase, it has been argued by a number of authors that it would be impractical without an adequate plan (Sim and Koh, 2001; Misiaszek and Oriot, 2002; Gumbus and Wilson, 2004; Akkermans and van Oorschot, 2005; Brewer et al., 2005; Phillips and Louvieris, 2005; Wu, 2005). Brewer et al. (2005) suggest that the BSC project be divided into subgroups. A leader should be assigned for each subgroup, and provided with responsibilities. Then the stretch targets should be formalized and an implementation plan for the BSC be developed by these leaders. It is important for this plan to specify the measures to be linked to the database and the information system, thus communicating the BSC across the organisation and establishing the second-level metrics for decentralised units. This will result in the development of a clear communication between top management and the shop floor (Kaplan and Norton, 1996b).

5.6.5.2 Final Implementation Plan

Niven (2002) suggests that there should be a review and finalization of the implementation plan. As has been mentioned before, for BSC systems to create value, they have to be integrated into organisation management systems. According to Kaplan and Norton (2001a), "the best available information should be used to focus the management agenda, consistent with the priorities of the scorecard".

5.6.5.3 Designing the Information System

Information systems have a very important role in the development and implementation of the BSC. Hence, the organisation needs to set up a satisfactory information system to assist implementation (Zambataro, 1999; Misiaszek and Oriot, 2002; Sandkuhl et al., 2003; Kim and Davidson, 2004; Akkermans and van Oorschot, 2005; Chand et al., 2005; Gumbus, 2005; Phillips and Louvieris, 2005). One reason for this, as Marr and Neely (2003) argue, is that if the BSC produces any unexpected results, managers need to have access to underlying data in order to investigate the cause of any problem or evaluate trends and correlations. If the information system is not satisfactory, this can have a considerable negative influence on the effectiveness of the BSC (Olve, 1999; Pereira et al., 2005).

5.6.5.4 Cascading the BSC

BSC implementation will not be complete until it has been cascaded to all organisational levels. According to Niven (2002), BSC cascading is a "process of developing BSCs at each and every level of [the organisation]". Also, Epstein and Wisner (2001) have argued for the BSC measures and objectives to be cascaded downwards to business units and eventually to all departments. The organisation could start its BSC programme by identifying the high-level strategic objectives, subsequently cascading measures to the lower-level departments to gain knowledge of their achievements and contribution to overall organizational goals (Sim and Koh, 2001; Mouritsen et al., 2005; Valiris et al., 2005). However, as discussed in section 5.6.3.1, there is an opinion that BSC implementation could start at the level of the business unit or even shared service units.

All employees in the organisation also need to be given an opportunity to understand what effect their actions are having, and how they are making a difference and helping the company accomplish its strategic objectives (Niven, 2002). Cascading the BSC would allow employees to keep track of their day-to-day actions and make comparisons with set targets.

The BSC cascading process usually takes as its starting point the highest level of the organisation (see Figure 5.12). The objectives and measures contained in the BSC are then pushed down to the next lower level, which is typically an individual business unit. The BSC is then cascaded to the third level, such as departments and groups, and finally to teams and individuals (Niven, 2002).

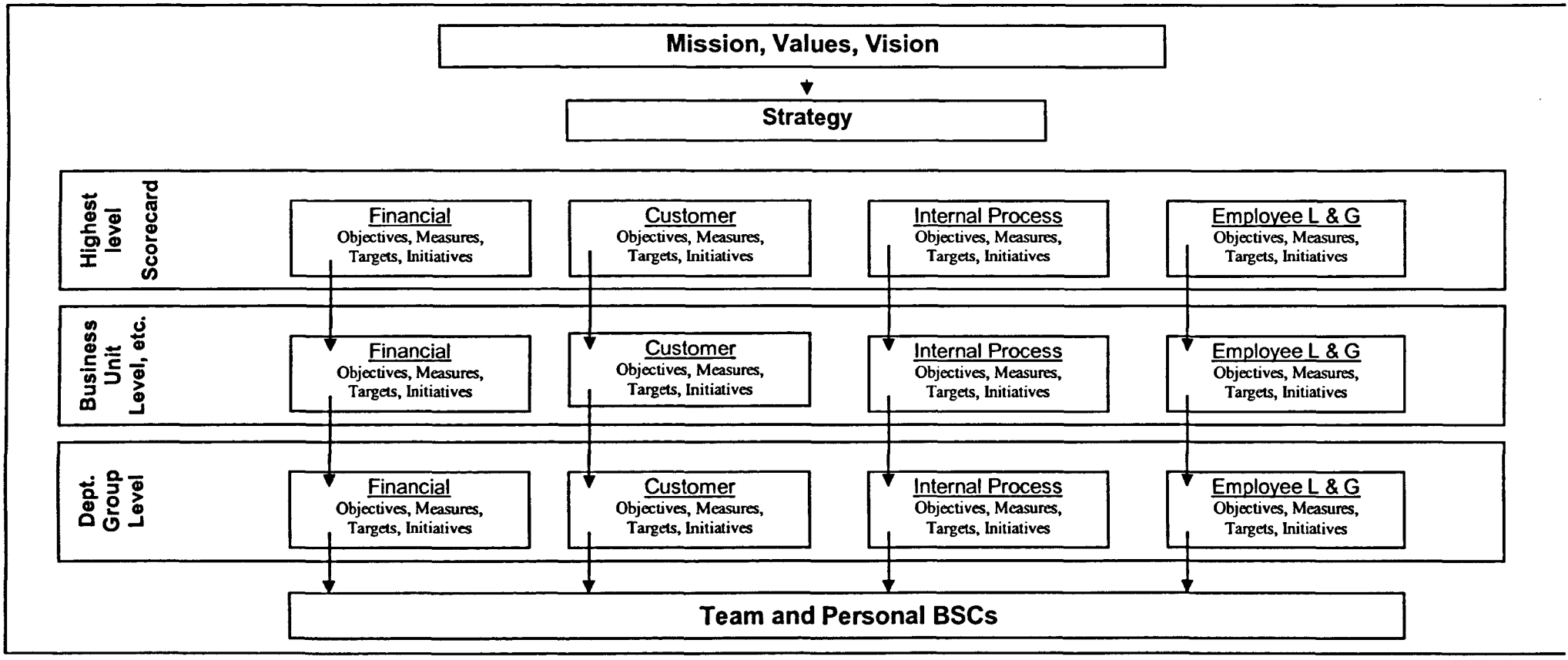


Figure 5.12 Cascading Process

Source: Niven (2002)

5.6.5.5 Personal BSC

Personal scorecards are useful tools for translating an organisational scorecard into specific goals and measures for each individual member. According to Chow et al. (1997), the personal BSCs will not all be identical, since each individual has a unique role in the organisation and brings different skills, talents and interests. However, Ahn (2005) argues that since an organization runs best with coordination, cooperation and specialisation among its members, individual differences between them need to be broken down and synergies created among the workers. Individual personal scorecards should show congruence with the company's overall strategies, goals and measures, but should also be flexible enough to accommodate individual strengths and weaknesses (Chow et al., 1997).

Niven (2002) summarises the many benefits that may be realised when employees develop their own personal BSCs:

- Builds awareness of the BSC.
- Generates commitment to the scorecards.
- Increases comprehension of scorecards.
- Offers a clear line of sight from employee goals to organisational strategy.
- Builds support for the goal-setting process.

5.6.5.6 Rolling out the Implementation Plan

The implementation of an established valuation programme like the Balanced Scorecard leads to significant changes in the manner in which employees view their jobs (Zelman et al., 2003; Brewer et al., 2005). It is natural and understandable that suspicion and mistrust arise during BSC implementation. Therefore, it is very important to involve everyone throughout the organisation by rolling out the BSC between the different levels (Kaplan and Norton, 1996a; Olve et al., 1999).

Once this has been done, senior managers need to monitor the plan continuously (Kaplan and Norton, 2001a; Niven, 2002); senior managers should carry out checks to see how the implementation is being done, evaluate the results and identify any problems associated with it.

5.6.6 Realisation of BSC Benefits

5.6.6.1 Measurement and Assessment

As has been mentioned before, organisations which do not have well-defined goals and performance measures experience a high level of difficulty in monitoring employees' progress. A number of studies have shown that careful performance measurement and assessment are vital to successful organisations (Niven, 2002). Therefore, one of the important benefits of BSC is that it allows the organisation to frequently review its measures and identify the correct combination of measures (Kaplan and Norton, 2001a).

5.6.6.2 Regular Reporting

In recent times, the BSC has become a popular and widespread management reporting method (Sharif, 2002). An important characteristic of the BSC system in management control is the execution of its monitoring and reporting strategy (Lawson et al., 2003). According to Amaratunga et al. (2002), "regular reporting of [the BSC] provided the information necessary to keep the directorate on track and to take corrective action rather than having to wait until after the event to realise that things had not gone according to plan".

The BSC allows organisations to integrate all aspects of the management information system, and this can influence how managers think about their business and how they invest their time and resources (Walker, 1996). BSC reporting has become significant for stakeholders, because it requires a company to disclose "its drivers of worth – those very factors which determine financial success. This is becoming of more interest to stakeholders in the competitive world of attracting investment" (Kane, 1998).

The organisation should have the awareness and knowledge of how to communicate its reporting to different users. The automation of BSC reporting systems is very important in facilitating the dissemination of reports.

5.6.6.3 Problem Solving

The organisation's processes may frequently face problems. Of particular importance in signifying improvement opportunities are problems that appear in the routine operational activities through which an organisation produces and delivers products and services (Tucker, 2002). Hence, those problems that may have an affect on the organisation's processes should be identified and a problem-solving team should be instituted to help resolve them. According to Knippen and Green (1997), such a team is "a group of individuals [working] together to analyse a situation, determine the real problem, look at every possible solution, evaluate each of the solutions, and choose the best one for their purposes".

Various solutions have been introduced by different specialists, consultants and academics, including the 'seven simple tools' of TQM, root cause analysis, failure mode and effect analysis, and fault trees (Finlow-Bates, 2000). There are also many tools that may help in problem analysis (see Table 5.10).

Table 5.10 Tools to facilitate problem analysis

▪ Brainstorming	▪ Scatter diagrams
▪ Idea checklist	▪ Surveys
▪ Cause-and-effect diagrams	▪ Criteria testing/rating
▪ Root cause analysis	▪ Benefit/risk analysis
▪ Component search	▪ Priority ranking
▪ Check sheet	▪ Multi-voting
▪ Pareto charts	▪ Action plans
▪ Mind maps	▪ Flow charts
▪ Distribution charts	▪ Gantt charts
▪ Control charts – variable data	▪ Audit checklists
▪ Frequency diagrams	▪ Failure mode and effects analysis

Source: Top-consultant (2004)

5.6.7 Sustainability

The BSC programme does not end with implementation; sustainability is very important if the organisation is to maintain continuity of results. According to Zairi (2001), sustainability is "the ability of an organisation to adapt to change in the

business environment, to capture contemporary best practice methods and to achieve and maintain superior competitive performance". In the following subsections several important issues that may support the sustainability of BSC are discussed.

5.6.7.1 Automating BSC

The effort required and the cost incurred in BSC development and implementation are considerably increased by manual processing, so automation is crucial in managing the huge amount of information related to a company's mission and vision, strategic goals, objectives, perspectives, measures, causal relationships and initiatives (Kaplan and Norton 2000b; Niven, 2002; Marr and Neely; 2003; Davig et al., 2004; Debnath et al., 2004; Urrutia and Eriksen, 2005). According to Bloomfield (2002), automation of the BSC can accelerate culture change, provide visibility to the BSC process and facilitate participation by a wider audience. Hence it is important for organisations to automate their BSC and to choose the most appropriate software for this. The application most widely used is Microsoft Excel.

For Niven (2002), automating the BSC provides many benefits by optimising the organisation's measurement, strategic management and communication systems. Bremser and Barsky (2004) identify several other benefits of BSC automation, including advanced analytics and decision support, support for deployment of the tool throughout the organisation, communication and feedback, and information sharing and knowledge. Flexibility is another important characteristic of the chosen BSC software, in order to accommodate "changes in data processing systems" (Lawson et al., 2004). According to Kaplan and Norton (2001b), BSC software can help organisations to become strategy-focused by:

- Using strategy maps to provide a visual representation of their strategy,
- Cascading high-level scorecards down to customised scorecards in business units, shared services and corporate staff units,
- Communicating scorecards to all members of the organisation, and
- Maintaining strategy as a continual process through the provision of a new reporting and feedback framework.

5.6.7.2 Regular Communication

It is important for the organisation to hold frequent and regular meetings to review and update the BSC, attended by representatives from all levels of the organisation (Niven, 2002; Pizzini et al., 2002; Sandkuhl et al., 2003; Akkermans and van Oorschot, 2005; Phillips and Louvieris, 2005; Smith and Kim, 2005). Niven (2002) argues that these meetings should serve to shift the organisational culture from one of blaming and scapegoating those who are held accountable or responsible for any decrease in revenue or gross profit, to one of collaboration and mutual understanding, where managers work together, critically examining the relationships amongst measures and learning from the results. These meetings should be mainly concerned with the results of the BSC, the achievement of targets, the variances from these targets and the identification of corrective measures.

5.6.7.3 Updating Measures

The BSC system is both highly dynamic and flexible (Self, 2004). Phillips and Louvieris (2005) suggest that it is not unusual for the BSC teams to expect a number of changes in the measures of each perspective, to the extent that even the organisational strategy may have to be changed as a result of sudden disruptions or variations in internal or external circumstances. The performance measures, therefore, have to be updated when circumstances change; such changes notwithstanding, an evaluation and revision of the measures should be carried out at least once a year in conjunction with organisational planning (Kaplan and Norton, 2001a; Niven, 2002).

5.6.7.4 Reward and Recognition

The BSC measures help managers to ensure that the activities of the different parts of the organisation and its members are congruent with its overall strategy (Olve, 1999). Kaplan and Norton (1996a) argue that the compensation and rewards of executives and managers should be based on the results of BSC measures. These rewards can be classified as extrinsic and intrinsic (see Figure 5.13).

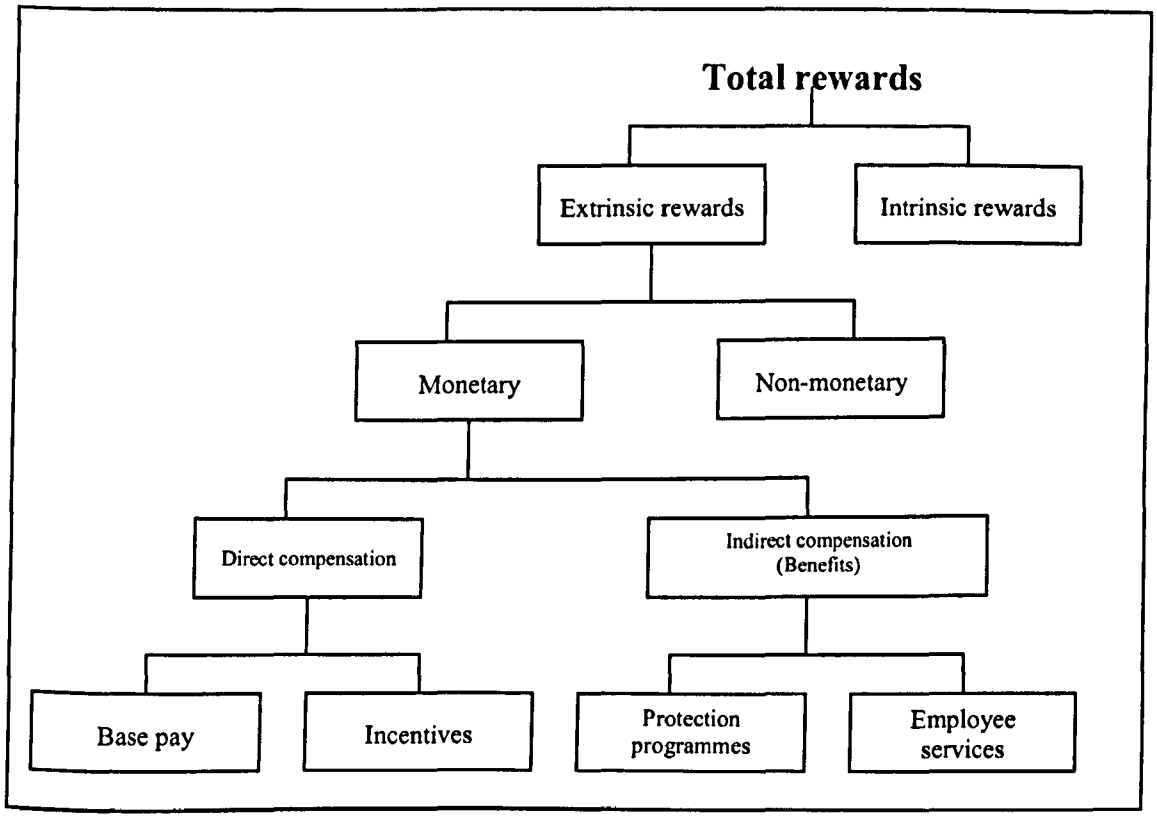


Figure 5.13 Breakdown of total rewards

Source: Franco-Santos et al. (2004)

According to Kaplan and Norton (1996c; 2001a; 2004a), "the final linkage from high-level strategy to day-to-day actions occurs when companies link individuals reward programs to the BSC". There are two main advantages of using scorecard measures for determining rewards: first, it helps in enabling employees to focus their attention on strategic priorities; second, employees have the extrinsic motivation of being rewarded when they and the organisation reach their targets. However, Olve et al. (1999) have identified a potential problem with the system of rewarding performance in terms of the scorecard: "The balance among several different measures may be destroyed when these measures are combined into a single index of benefit". Another source of problems may arise when the BSC measures are not synchronised or linked with strategic objectives, and when the actions that improve the short-term measured results are not necessarily congruent with achieving long-term objectives (Kaplan and Norton, 1996c).

5.6.7.5 Benchmarking and Target Stretching

According to Goldberg (2004), "benchmarking involves determining best practice guidelines for maximizing performance and guiding a company toward improved efficiency and effectiveness while reducing waste". Cook et al. (2004) argue that as a result of benchmarking, business units are forced to keep evolving and developing continuously so as to survive and grow in a globally competitive business environment.

The BSC can make use of benchmarking information to set targets. Benchmarking, according to Kaplan and Norton (1996c), "can be used to incorporate existing best practice and to verify that internally proposed targets will not keep the business unit trailing in strategic measures". Kaplan and Norton (2001b) claim that the BSC is a powerful tool for increasing the acceptability of aggressive targets, as it emphasises the achievement of outstanding performance by a set of related measures, as opposed to just improving performance in isolated measures. As a result, it is possible for CEOs to motivate stretch targets for the BSC measures by creating a performance gap (Figure 5.14) in critical high-level financial objectives (Kaplan and Norton, 1996c).

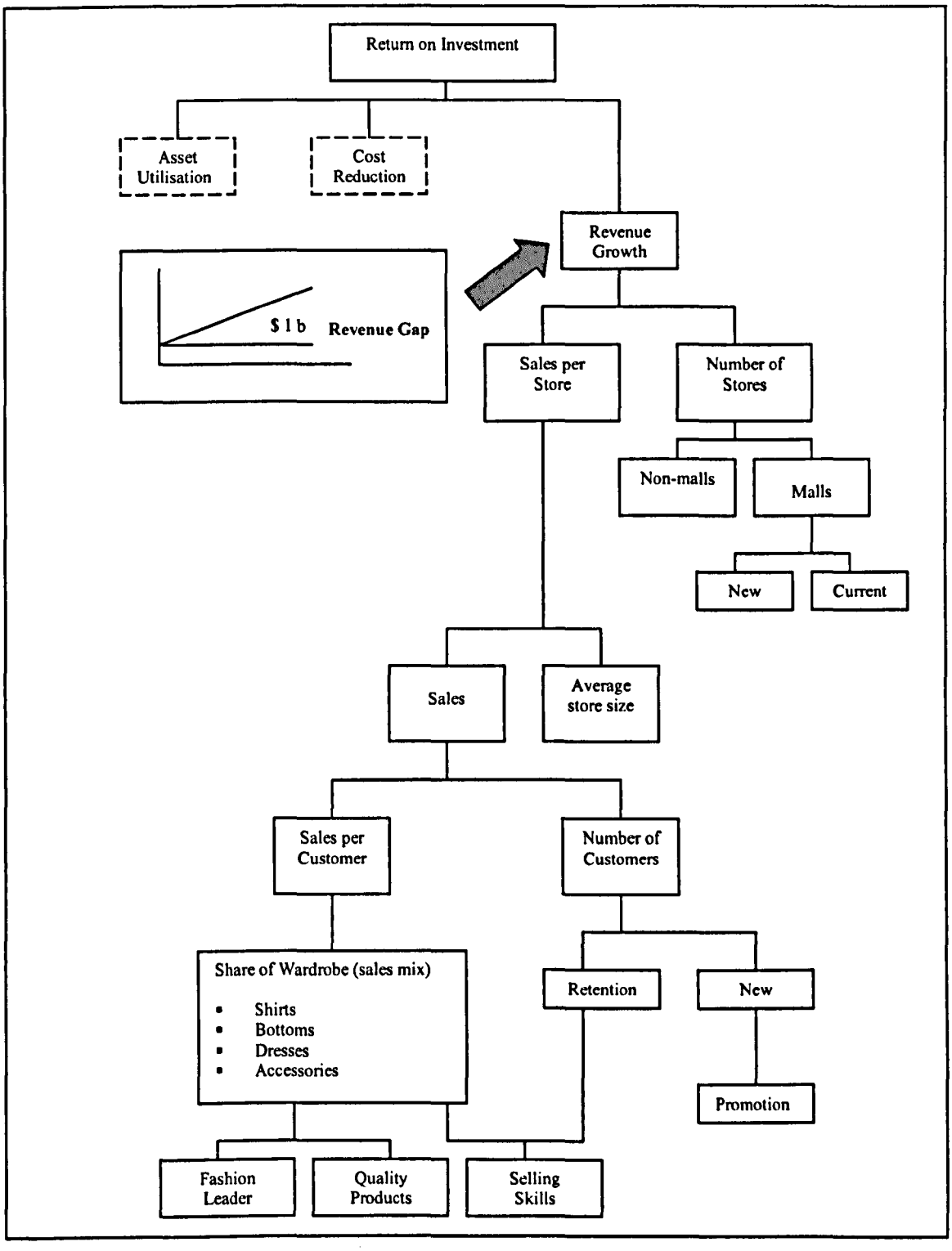


Figure 5.14 Setting stretch targets based on cause and effect at Kenyon Stores

Source: Kaplan and Norton (2001a)

5.6.7.6 Corporate Alignment

To create value, intangible and tangible assets need to be aligned, and it is only in the context of strategy that they take on value (Gumbus and Wilson, 2004; Brewer et al.,

2005; Wells and Weiner, 2005). Integration is also required if all the intangible assets of the organisation are to be enhanced. Together, according to Kaplan and Norton (2004a), alignment and integration supply the theoretical building blocks for establishing objectives for human, information and organisational capital in the learning and growth perspective. Thus, organizational alignment to corporate strategy is an important part of the BSC. The identification of key strategic initiatives to achieve objectives and the appropriate allocation of resources are the basis for effective execution.

5.6.8 Learning and Innovation

As well as being sustained in the ways described above, BSC needs to be modified, adapted and improved to suit a rapidly changing business environment (Kim and Davidson, 2004; Mukhopadhyay, 2005). Therefore, it is best to think of the BSC as a continuous, cyclical process rather than a closed linear project (Kaplan and Norton, 1996c). The organisation has to innovate by learning from its experience of BSC implementation. As Doran et al. (2002) have suggested there should be frequent review, discussion and revision of the BSC results, considering process strategies as well as events and operations.

Kaplan and Norton (1996a) note that organisations often conduct meetings that are designed for one-way communication about past performance (operational review), which is a short-term, linear approach to the review process. However, the need for continuous improvement through a series of timely changes makes it imperative for organizations to focus at this stage on learning and renewal (Kaplan and Norton, 1993; Doran et al., 2002).

As many managers and executives are trained in the tradition of managing projects which have a beginning and an end, their attitudes and mindsets may differ from what is required to sustain BSC development (Kaplan, 1995). Managers have to recognise that BSC is a continuous improvement system. They must use the information it provides to improve both the BSC itself and the organisation, not simply to identify good and poor performers, especially those resistant to the transparency the BSC brings (Doran et al., 2002; Karathanos and Karathanos, 2005).

5.7 Summary

This chapter has aimed to give the reader a broad overview of the BSC literature, beginning by discussing the definition and origin of the concept, followed by a comprehensive survey of BSC fundamentals and perspectives. It then discussed the processes of BSC implementation, the movement from performance measurement to performance management and the literature on BSC evaluation, including its use as a strategic management tool and the importance of causal relationships. There were also brief sections on the number of BSC perspectives and measures, and the limitations of BSC.

The chapter covered in depth the CSFs suggested in the BSC literature. An extensive review of literature on existing CSF models for BSC implementation identified factors including vision, mission, values, strategy, executive and management commitment, planning phase factors (such as BSC team and culture stimulation), developing phase factors (such as training and integration), implementation phase factors (such as information systems and cascading BSC), the realisation of benefits (such as regular reporting and problem solving), sustainability phase factors (such as BSC automation and updating measures), and learning and innovation.

The next chapter will examine the theoretical literature on research methodology and will set out the methodology used to conduct the present study.

6. Research Methodology

6.1 Introduction

This chapter attempts to link the background material developed in the previous and following chapters, which are directed towards an in-depth examination of a large oil organization in Saudi Arabia. It also explains the various research techniques used, including data collection and sampling. This research implements a methodology which combines both qualitative and quantitative elements. The methods used aim to strengthen measurement and analysis by the use of a case study. The main purpose of this chapter is to provide an outline of the research methods used and to explain the procedures employed for data collection and data analysis. Furthermore, it discusses the theory underlying the methods used to help understand the reasons for undertaking certain activities.

The discussion in this chapter has to be understood in the context of the research setting introduced in Chapter One. The discussion will be guided by the review of the literature in Chapters Four and Five and will justify the best methods that could be implemented in this study to collect the necessary data.

The first part focuses on the theoretical literature on research methodology and design; this covers the nature of research, its typology in terms of approach and design, and the differences between various methods. The second part describes the processes employed in the design and execution of the present research.

PART ONE

6.2 Definitions and Purpose of Research

Hussey and Hussey (2003) claim that in spite of a plethora of research activity, there is no agreement in the current literature on how the term 'research' should be defined. However, it can be said that the aims of research are to create knowledge and to make novel contributions to what is usually referred to as 'a body of knowledge' (Macleod-Clark and Hockey, 1989). Hence, the researcher is required to argue convincingly that something new and of value has been added to that knowledge.

According to Sekaran (2003), research can be defined as "an organised, systemic, data-based, critical, scientific inquiry or investigation into a specific problem, undertaken with the objective of finding answers or solutions to it". The Oxford Advanced Learner's Dictionary of English defines research as "a careful study or investigation, especially in order to discover new facts or information" (Hornby, 1995), while Mason (1984) is of the opinion that the planning and designing of research entails recognising "the centrality of the research question to the research process, and of linking research questions to one's own philosophical and methodical position on the one hand, and to appropriate data generation methods on the other". Thus, research covers the processes of inquiry, investigation, examination and experimentation. These have to be carried out systematically, diligently, critically, objectively and logically (Sekaran, 2003).

Normally, the specific aims of any research depend on the issue being investigated. In general, it can be argued that research is carried out for one or more of the following reasons (Aaker et al., 1995):

- To search for things
- To solve a given problem
- To predict or forecast events or trends, for example in the case of market surveys or opinion polls
- To understand social problems or phenomena

- To influence people's ways of thinking by providing alternative solutions to problems under investigation
- To enhance knowledge of a particular topic by widely disseminating the knowledge acquired.

6.3 Classification of Research Methods

Hussey and Hussey (2003) classify research into four categories, based on its purpose, process, logic and outcome. Table 6.1 shows these categories.

Table 6.1 Categories of Research

Type of Research	Basis of Classification
• Exploratory, descriptive, analytical or predictive	Purpose of research
• Quantitative or qualitative	Process of research
• Deductive or inductive	Logic of research
• Applied or basic	Outcome of research

Source: Hussey and Hussey (2003)

Three types of research, elaborated below, can be distinguished on the basis of their purpose.

1. Exploratory research is carried out in situations where there is not much literature available in terms of previous studies. It deals with the exploration of possible reasons for a particular practice, based on hypotheses which are developed to be tested on a larger scale. This research type, which is considered to be open, uses flexible data collection methods like the case study technique, personal observation and historical analysis of secondary material, which involves the collection of a wide range of data (Hussey and Hussey, 2003). Exploratory research is useful in ranking research questions in terms of priority. It can also be helpful in gathering early information on practical problems that may be encountered during the research (Aaker *et al.*, 1995).

2. Descriptive research is very popular in social science studies (Aaker *et al.*, 1995). In a business context, it involves the description of the specific activities of a company or a group of companies. Descriptive research identifies and collects data on the characteristics of a particular problem, describes phenomena as they exist and examines problems at a deeper level than an exploratory study (Hussey and Hussey, 2003). Descriptive research fulfils at least four different purposes :
   - It provides a clear picture of some aspect of the social environment.
   - It describes the characteristics of certain research problems.
   - It estimates the proportion of people in a specific population who behave in a certain way.
   - It makes predictions.

3. Analytical research goes still further than descriptive research in trying to explain how and why a certain problem exists. To do this, it looks for causal relationships among the variables identified in order to understand the phenomenon or problem that is being studied (Hussey and Hussey, 2003).

6.4 Research Approaches

Different methodologies can be used for collecting data from various sources. Data collected can be classified as qualitative when it consists of words and describes situations, individuals or circumstances around a phenomenon, and quantitative when it is in the form of numbers (Huberman and Miles, 2002, Blaxter *et al.*, 2001). Denzin and Lincoln (1994) claim that both qualitative and quantitative approaches to data collection can be used appropriately, irrespective of whether the research philosophy involved is positivist or interpretivist. Theoretically, the nature of the research problem dictates the choice of methods; in practice, however, constraints such as time and funding greatly influence the researcher's choice of methods.

6.4.1 Qualitative Research

The label 'qualitative method' cannot be pinned down to a specific definition in the social sciences. It is an overarching term covering a range of interpretive techniques seeking to describe, decode, translate and otherwise come to terms with the meaning,

not the frequency, of certain more or less naturally occurring phenomena in the social world (Van Maanen, 1983).

Qualitative methods refer to a kind of data-gathering technique which includes document review, interview, observation and focus group (Paton, 1980). Morgan and Smircich (1980) argue that qualitative research is an approach rather than a particular set of techniques and that its usefulness and appropriateness depend on the nature of the research issue being studied. Qualitative methods yield data which are "rich, full, earthy, holistic, 'real'; their face validity seems unimpeachable; they preserve chronological flow where that is important, and suffer minimally from retrospective distortion... Furthermore, their collection requires minimal front-end instrumentation" (Miles, 1979, p.560).

Kirk and Miller (1986) assign the following steps to any qualitative approach to research: invention, discovery, interpretation and explanation. Similarly, Hignett and Wilson (2004) distinguish five key points which distinguish qualitative from quantitative methods: words and pictures, rather than numbers; few cases, many 'variables', instead of the reverse; sampling developed during study, rather than pre-assigned; iterative analysis; and reflexivity as to the role of the researcher.

For Remenyi (1998), qualitative methodology reflects "a theoretical point of view that advocates the study of direct experience taken at face value; and which sees behaviour as determined by the phenomena of experience rather than by external, objective and physically described reality". With reference to a positivist tradition, qualitative projects largely serve the purpose of exploratory studies, which then lead into more structured or quantitative studies (Deshpande, 1983; Tashakkori and Teddlie, 1998). Qualitative research is also often used as a first step in the design of structured interview surveys (Hakim, 2000).

Qualitative research is distinguished from quantitative research by its concern with interpreting meaning in textual data, rather than in numerical data through the use of statistical methods. According to Hakim (2000), one of the greatest advantages of qualitative research is the validity it lends to the data, as they are normally collected in

sufficient detail for the results to be taken as true, correct, complete and believable reports of participants' views and experiences. In spite of this, qualitative research suffers from a major drawback in the sense that the small number of participants who are usually involved may lead to concerns being raised about the representativeness of the sample (Hakim, 2000). Thus, qualitative research is concerned with the depth rather than the breadth of data.

Miles (1979, p.590) notes that

> "*Qualitative data tend to overload the researcher badly at almost every point: The sheer range of phenomena to be observed, the recorded volume of notes, the time required for write-up, coding, and analysis can all be overwhelming. But the most serious and central difficulty in the use of qualitative data is that methods of analysis are not well formulated.*"

Qualitative research also suffers from the problem of subjectivity, as the chances that researcher may him/herself act as a measurement tool are increased as compared to quantitative research (Walter and Gall, 1989).

There are several features which define the nature and design of qualitative studies: taking a holistic approach in investigating a phenomenon; performing the study in a natural setting so as to make the conditions as close to reality as possible (Walter and Gall, 1989), which has the benefit of allowing more flexibility and responsiveness to the 'multiple realities' that the researcher is faced with while investigating a complex field situation; and selecting the sample for observations purposively rather than randomly, which has the benefit of helping the researcher avoid missing samples that could be considered as 'outliers' under a random selection process.

Easterby-Smith *et al.* (2001) list two basic ways to analyse qualitative data:

1. **Content analysis** involves studying the frequency of occurrence of key phrases in texts or interviews. Here, although the researcher may grasp the key concepts in the data, it will be difficult to understand the reasons for their occurrence.
2. **Grounded theory** recognises the difficulties involved with analysing large amounts of non-standard data produced by qualitative studies; hence, rather than

imposing an external structure, research involving grounded theory derives its structure from the data (emergent themes and patterns). This structure is thus grounded in concepts used by the social actors themselves.

6.4.2 Quantitative Research

Quantitative research aims at discovering causality, predicting or explaining a relationship and comparing or relating several variables under investigation (Creswell, 1994; Churchill, 1995). Quantitative methods are used to test and verify hypotheses using statistical techniques (Agresti & Finlay, 1997) based on sampling theory (Kalton, 1983) or experimental design (Campbell & Stanley, 1966). The purpose of this is to generalize the results to a larger population.

Quantitative research designs are based on the assumption that it is possible to explain human behaviour through what may be termed 'social facts', which can be investigated by various methodologies (Horna, 1994). With relatively satisfactory quantitative questions it should be possible to identify the population and dependent variable(s), whether they represent descriptive, comparative or relationship research questions. If they represent comparative or relationship research questions, then the independent variable(s) should also be identifiable.

Creswell (1994) presents some of the assumptions that are implicit in quantitative research as follows:

- Reality is objective and singular.
- The researcher is independent from the entity being researched.
- The research is value-free and unbiased.
- Formal language is used in the research.
- The logic of the process is deductive.
- Generalisation leads to prediction, explanation and understanding.
- The context has no influence on the results.
- Validity and reliability are provided by accurate and reliable statistical analysis.
- Large samples (cases or subjects) are used.

Table 6.2 lists some of the differences between quantitative and qualitative approaches. Nevertheless, Remenyi (1998) argues that since research into strategic issues merits the collection of data concerning 'how', 'why' and 'what', the two approaches can often be used complementarily. Furthermore, qualitative and quantitative methodologies are not opposites or divergent; rather, they are concerned with different dimensions of the same phenomenon. At times, these dimensions may appear to conflict with each other, but even in such cases, the underlying unity may become visible on further exploration.

Table 6.2 Qualitative vs. Quantitative Approaches

	Qualitative Approach	Quantitative Approach
Types of question	Probing	Limited probing
Sample size	Small	Large
Amount of information	Substantial	Varies
Requirements for administration	Interviewer with special skills	Interviewer with fewer skills
Type of analysis	Subjective, interpretive	Statistical, summation
Hardware	Audio recorders, projection devices, video recorders, pictures, discussion guides	Questionnaires, computers, printouts
Degree of reliability	Low	High
Type of research	Exploratory	Descriptive or causal

Source: McDaniel and Gates (2002)

6.4.3 The Combination of Quantitative and Qualitative Methods

Triangulation is used by researchers in order to validate their results, thus increasing their confidence in the results obtained (Brannen, 1995). It is commonly agreed that combining quantitative and qualitative research methods can help researchers to understand better the issues in question, compared with using either of the two separately. Every method of data collection in the social sciences also suffers from a certain degree of 'method specificity'. As a consequence, it is highly useful for researchers to triangulate methods whenever this is possible, i.e. to use more than one means of data collection to tackle a particular research issue.

Neuman (1997) also suggests the use of multiple methods to address the same research problems, with the thinking that different methodological weaknesses of each particular approach will be cancelled out to produce superior findings in terms of confidence in the results. For instance, collecting qualitative data through the use of semi-structured group interviews may be a useful way of triangulating quantitative data collected by other means, such as a questionnaire (Saunders *et al.*, 2007). Furthermore, collecting different kinds of data by different methods from different sources provides a wider range of coverage, which may result in a fuller picture of the unit under study than would have been achieved otherwise (Bonoma, 1985).

Brannen (1995) argues that triangulation results in the achievement of a holistic picture of the research issue. Using multiple methods increases the robustness of results obtained. Cross-validation is achieved when different kinds and sources of data come together and are found matching (Bonoma, 1985; Jick, 1983; Yin, 1984). McBride and Schostak (2004) argue that qualitative data could support quantitative evidence, making it clearer and stronger. In reality, it is not necessary for researchers to make either/or decisions, choosing between qualitative and quantitative research methods (Sackett & Larsen, 1990); indeed, wherever possible they should avoid doing so, since each approach has its own strengths and weaknesses. Thus, according to Stainback and Stainback (1988, p.8), "differences in qualitative and quantitative research do not necessarily imply the superiority of one methodology compared to the other as a research strategy. Rather, these differences may make one methodology more useful than the other depending on the research question."

Onwuegbuzie and Teddlie (2003) conceptualise the following seven stages which the researchers may undertake when analyzing quantitative and qualitative data within a mixed-methods framework: (a) data reduction, (b) data display, (c) data transformation, (d) data correlation, (e) data consolidation, (f) data comparison and (g) data integration.

In conclusion, the quantitative and qualitative approaches are best thought of as complementary and useful in research of many kinds (Das, 1983). Bryman (1988) also argues for a combined pursuit of qualitative and quantitative research to provide a

more comprehensive picture of a phenomenon, since the combined approach draws on the respective strengths of each method.

6.5 Data Collection

Overall, researchers rely on two types of data: primary and secondary. Collection methods for each of these types are discussed here, including the advantages and disadvantages of the methods.

6.5.1 Primary Data

Primary data is that which is directly collected for the first time by the researcher from primary sources (Rummel and Ballaine, 1963). Ghauri *et al.* (1995) argue that in cases where secondary data are not sufficient to answer the research questions, primary data should be collected. The methods of primary data collection include case study, participant observation, interview and questionnaire.

6.5.1.1 Case Study

Yin (2003) states that the case study method represents a comprehensive research strategy, which should include particular techniques for collecting and analysing data. Case study research can cover a broad range of basic methods of data collection, include information from a wide variety of sources and increase the robustness of our analysis of issues. Hussey and Hussey (2003) refer to case studies as "an extensive examination of a single instance of a phenomenon". A further important factor is the scope of the study; for instance, whether the intention is to expand the investigation across multiple cases, or rather to focus on a single case study. The single case study method can be used in cases where the issue is to determine whether a theory's propositions are correct or whether some alternative set of explanations may be required. The case study method can represent the critical test of a well-formulated theory (Yin, 1994).

Hussey and Hussey (1997) describe the case-study approach as an extensive investigation of a single instance of a phenomenon of interest. For Yin (2003), a case study represents an empirical inquiry that investigates a contemporary phenomenon within its real-life context and which is particularly appropriate where the boundaries between phenomenon and context are not very apparent. Thus, the best application of the case study method is when in the opinion of the researcher the context of the phenomenon being investigated has an effect on the phenomenon itself. On the other hand, Stake (1995) argues that the case study is not a methodological choice, but rather a selection of what is to be studied. Yin (2003) lists the most important data sources for use in case studies as documentation, archival records, interviews, direct observation, participant observation and physical objects. Table 6.3 lists the strengths and weaknesses of each of these data sources, which researchers should consider. Most of the weaknesses can then be minimised through the use of triangulation.

Table 6.3 Strengths and Weaknesses of Six Sources of Evidence

Source of Evidence	Strengths	Weaknesses
Documentation	Stable– can be reviewed repeatedly. Unobtrusive– not carried out as a result of the case study. Exact– contains exact names, references and details of an event. Broad coverage– long time span covers many events and many settings.	Retrievability– can be low. Biased selectivity, if collection is incomplete. Reporting bias– reflects (unknown) bias of an author Access– may be deliberately blocked. Danger of false or unreliable documents.
Archival Records	(As above for documentation). Precise and quantitative.	(As above for documentation). Accessibility for reasons of confidentiality.
Interviews	Targeted – focuses directly on case study topic. Insightful– provides perceived casual inferences.	Response bias. Inaccuracies due to poor recall. Reflexivity– interviewee says what interviewer wants to hear.
Direct Observation	Reality– covers events in real time. Contextual– covers context of event.	Time consuming. Selectivity– unless broad coverage. Reflexivity– event may proceed differently because it is being observed. Cost– hours needed by human observers.
Participant Observation	(As above for direct observation). Insightful into interpersonal behaviour and motives.	(As above for direct observation). Bias due to investigator's manipulation of events.
Physical Artefacts	Insightful into cultural features. Insightful into technical operations.	Selectivity. Availability.

Source: Adapted from Yin, 2003:86

The case study method in research is a challenging undertaking and is often used to supplement the knowledge of individuals, of groups, of organisations and of social, political and related phenomena. One clear advantage of the case study method lies specifically in its capacity to explore social processes as they unfold in organisations. A second is that the open-ended nature of much data-gathering makes it possible for processes to be examined in considerable depth (Symon and Cassel 1998). Generally, the case study approach is especially useful for the purposes of network research, in that it helps generate insight into social dynamics and the operations of both firms and owner-managers over time (Anderson *et al.*, 1994; Coviello and Munro, 1995; Ennis, 1999; Shaw, 1999). The case study method is therefore a medium through which theories can be generated and modified as per the data obtained.

In conclusion, the case study approach results in the balancing of different methods, as it gives the researcher the option to choose from multiple techniques of data collection.

6.5.1.2 Participant Observation

Participant observation is a method of data collection which is concerned with gathering information on the phenomena being studied. Its main advantages are that researchers are able to study behaviour as it occurs and that it is possible to record spontaneous occurrences (Sellitz *et al.*, 1976; Nachmias and Nachmias, 2002). Data collected through observation gives the description of the observed phenomena as they occur in their natural settings, which is an advantage over other data collection methods, as these may bring a semblance of artificiality into the research environment. This makes participant observation more reliable and free from respondent bias (Sekaran, 2003). This method is more useful in settings which involve studying small closed communities; in particular, their behaviour and ways of living. It suffers from the major limitation that it is not useful in research which involves observing cognitive phenomena such as attitudes, intentions and expectations (Zikmund, 2000).

6.5.1.3 Interviews

An interview can be defined as a face-face verbal interaction between two people where one of the persons involved, the interviewer, asks the other person, the interviewee, questions so as to gather information on his/her opinion or beliefs in his/her fields (Alsbab, 1990). Many studies have suggested that personal interviews are the best method to gather information, although information on facts and certain opinions can also be obtained through other means, such as by post, email or telephone. However, some information can be obtained only in one-to-one interviews, particularly if the interviewee is an academic (Campbell, 1980). Interviews, in general, are more strenuous than other approaches in terms of gathering data and analysing the results. Arranging interviews with people can also be difficult if they hold positions of importance, e.g. decision-makers in either governmental or private organisations (Hibberd and Bennett, 1990).

Interviews have the advantage of high response rates when compared with other techniques, which results from the interaction between the interviewer and the interviewee. The response rate can be as high as 95% (Nachmias, and Nachmias 2002) and general population samples tend to produce this rate (De Vaus, 1996; Oppenheim, 1992). Interviews are considered to be the most appropriate method of data collection, as it makes it possible to check accuracy, as well as to verify and/or refute the data obtained through dialogue and observations (Kerlinger, 1973). Finally, Fraenkel and Wallen (1993) re-emphasise that the main advantage of conducting face-to-face interviews is that it makes possible direct contact with respondents.

While doing interviews, it is important for interviewers to order the questions in such a way that easier and more general questions are asked first. They should always seek to avoid questions of a more sensitive nature at the beginning of the session. This will create an atmosphere of closeness and interviewee will become more confident of working with the interviewer, which will help in the interview process. The language used should be easy for the interviewee to understand. The interviewer should support him/her and respect his/her views and opinions as well as the confidentiality of the information provided. It is not good practice to interrupt an interviewee or to ask more than one question at a time (Gunem *et al.*, 2000). Interviewers have four broad

responsibilities: (1) to locate informants as specified in the sampling plan; (2) to translate these contacts into effective interviews; (3) to secure valid and reliable responses; and (4) to record responses accurately (Chrisnall, 1995).

For focus group interviews, the objective must be to obtain redundancy or 'topical saturation' (Merton *et al.*, 1990). In other words, the interviews should be carried on until the researcher reaches a stage where conducting any more sessions will not produce any new information or add any value. This is not very different from other qualitative interviewing situations, where new data is obtained through initial interviews, while subsequent ones tend to produce less and less information, serving the main purpose of confirming data from previous interviews.

The process of conceptualising and conducting qualitative research interviews can be divided into four steps: defining the research question, creating the interview guide, recruiting participants and carrying out the interviews (Symon and Cassel 1998). Bottlett (1987) lists a number of factors which can influence the quality of the interview: the selection of people who will participate in the interview; making all the adequate and necessary preparations for the interview; having a pre-planned design for the interviews and the questions; carrying out a dry run before the interview; ensuring the reliability of the information obtained; recording the interview; recognising the necessity that the researcher should have background information on the interviewees; and having an understanding of the goal of each question.

In-depth interviewing is a method involving intensive one-one interviews with a small sample of respondents in order to understand and explore their perspectives on a particular idea or situation. One of its major advantages is that the interviewer is able to obtain much more detailed information than can be obtained from other data collection methods, such as surveys. It provides the interviewer the opportunity to introduce a particular topic if it has come up during the discussion. The interviewer should allow the discussion to flow as naturally as possible and some topics are bound to arise without being explicitly raised by the interviewer.

Herod (1999) notes that when interviewees are foreign members of elites, the interview process and subsequent data processing may be affected by often taken-for-granted notions of who are the insiders and outsiders, and by notions of 'authentic' knowledge in cross-cultural qualitative studies. There are also some more general disadvantages to the interview method. First, interviews tend to be costlier than mail surveys, and also transcribing the information obtained from such interviews can be very time consuming and prone to errors (Nachmias and Nachmias, 2002). Another disadvantage is that interviews cannot be anonymous in the sense of the identity of the interviewee being unknown to the researcher, which could be detrimental in cases where the subject matter of the interview is delicate or sensitive and where interviewees may be hesitant in their responses (Hibberd and Bennett, 1990). It is also possible for an interviewer to introduce bias by inadvertently leading an interviewee in a particular direction or by making some 'off the cuff' comments on the questions being asked (Aldridge and Levine, 2001).

6.5.1.4 Questionnaire Method

A questionnaire can be defined as a list of structured questions which have been selected after comprehensive testing so as to obtain reliable responses from the sample respondents (Hussey and Hussey, 1997). The questionnaire method is suitable for descriptive or explanatory research (Saunders *et al.*, 2000). Through questionnaires, it is possible to obtain data more efficiently in terms of time, energy and cost (Sekaran, 2003; Hussey and Hussey, 1997).

A questionnaire survey is useful in cases where it is required to gather moderate amounts of information from large samples of people, particularly when the resources available to the researcher are limited (Hibberd and Bennett, 1990). Furthermore, the questionnaire method is suitable for collecting information about attitudes, motivation, accounts of behaviour, opinions and events (Arksey and Knight, 1999). Many researchers (e.g. Oppenheim, 1992; Easterby-smith *et al.*, 2002; Sekaran, 2003) report that questionnaires are the most popular data-collection method and can be administered personally, electronically distributed or posted to respondents.

A personally administered questionnaire is usually administered to the respondents by an interviewer in person or by someone officially representing the interviewer (Oppenheim, 1992). There are usually two forms of this type of questionnaire, depending on the distribution method used. The first is the self-administered questionnaire, where the researcher presents the questionnaire to the respondent, who is then left alone to complete it. The second is the group-administered questionnaire, which is distributed to a group of respondents assembled in order to complete it.

On-line questionnaires are delivered and returned electronically using either email or a web site (Saunders *et al.*, 2000). They are usually more economical in terms of time and money, and the data can be collected and collated much more easily. However, a questionnaire sent by email may be considered as spam and deleted by the intended respondent. The lack of visual and auditory contact between the researcher and the respondent also amounts to a loss of personal touch.

Postal questionnaires have traditionally been among the most commonly used methods of data-collection in the social sciences (Oppenheim, 1992). In this case, the questionnaire is posted to potential respondents with a covering letter and a prepaid envelope for the return of the completed questionnaire.

Although questionnaires provide quick, inexpensive, flexible, efficient and accurate means of acquiring information about a population, they may contain some errors (Zikmund, 2000). For example, a response error could arise as a result of imperfect research design or due to a mistake made during the execution of the research, such as during random sampling (Zikmund, 2000). The researcher should always be aware of various forms of sampling error and make attempts to minimize them, to maximize the information gained and provide generalized results. The relative advantages and disadvantages of the four commonly used questionnaire methods are summarized in Table 6.4.

Table 6.4 Advantages and disadvantages of questionnaire methods

Factor	Personal Interview	Telephone Interview	Postal Survey	Email Survey
Cost	Medium to expensive	Medium	Cheapest	Cheap
Speed of collecting data	Moderate to fast	Fast	Slow; researcher has no control over the return of questionnaires	Instantaneous
Geographic flexibility	Limited to moderate	High	High	Worldwide
Sample size coverage	Small	Small to medium	Large	Large
Length of questionnaire	Medium to long	Medium	Varies depend on incentive	Modest
Respondent cooperation (percentage of return)	Excellent	Good	Moderate; poorly designed questionnaire will have low response rate	Varies
Possibility for respondent misunderstanding	Lowest	Average	High	High
Item non-response	Low	Medium	High	None; can use software to ensure response to all items
Anonymity of respondents	Low	Moderate	High	Respondents can be anonymous
Ease of follow-up	Difficult	Easy	Easy; but takes time	Difficult
Degree of researcher influence on answers	High	Moderate	None; researcher is absent	None

Source: Adapted from Zikmund (2000) p.212.

Postal questionnaires are highly cost effective, especially in cases where the sample size is large (Ticehurst and Veal, 2000). This method also enables highly confidential questionnaires to be administered and gives respondents time to ponder before they write down their responses, which minimises the possibility of researcher bias. Postal questionnaires are also suitable for reaching a geographically dispersed population (Ticehurst and Veal, 2000; Zikmund, 2000).[25]

In contrast to postal questionnaires, personal and telephone interviews are expensive and are not suitable for large samples; nor are they feasible for a geographically dispersed population. Some other limitations are summarized in Table 6-4. Although

[25] In the second part of this chapter, the researcher will explain how the advantages and disadvantages of the various forms of questionnaires influenced his own design of the questionnaire.

email questionnaires have become quite popular recently, the follow-up process is more complicated than for postal ones, since, in the case that the respondents can be identified, some may not be enthusiastic to respond to the questionnaire, thus resulting in a lower response rate.

Telephone interviews are more accurate and tend to increase the quality of the data; they also tend to have a higher response rate than face-to-face interviews. They do, however, suffer from some disadvantages and the researcher should be aware of them. The quantity of information that can be obtained through telephone interviews is limited; interviewers are hindered in describing in detail the respondents' characteristics or their environment. Discussing confidential matters over the telephone can also be delicate for respondents (Nachmias & Nachmias, 1996).

6.5.2 Secondary Data

Secondary data has been defined as having been gathered previously and for purposes other than the requirements of the current research. An alternative definition is "published information which has been collected for some information need" (Stewart and Kamins, 1993). Secondary data are mostly historical, and do not require access to respondents or subjects. The major sources of such data are books, periodicals, governmental and official publications, theses, dissertations and other similar sources. The defining distinction between primary and secondary data is that the person who finally draws conclusions from the latter is not the one who collected it (Stewart and Kamins, 1993; Rummel and Ballaine, 1963). As a consequence, secondary data have the disadvantage that they were not designed specifically for the needs of the current research. Therefore, it is imperative that the researcher test secondary data for accuracy, bias and soundness (Zikmund, 2000).

Saunders *et al.* (1997) classify secondary data into three categories: a) documentary secondary data, including written documents such as reports, minutes, transcripts of speeches, books and journals, and unwritten documents, including films, pictures, drawings and video recordings; b) survey-based secondary data, which have been collected for other purposes by other researchers; and c) multiple-source secondary data, which include a combination of types a) and b) before the researcher uses them.

Saunders *et al.* (1997) contend that secondary data are largely used in the case study and survey types of research, but have also been used in experimental studies.
Churchill (1995) advocates that researchers should start with secondary data, and only when such data are not sufficient for the purposes of the research should they look for primary data. Secondary data can save much time and money (Churchill, 1995; Ghauri *et al.*, 1995) and can help researchers to compare different research methods in order to select the most appropriate approach to collecting primary data (Ghauri *et al.*, 1995).

Reasons to use secondary data

Researchers have increasingly come to depend on secondary data for their endeavours. Nachmias and Nachmias (2002) list three basic explanations for this:

- ***Conceptual-substantive reasons***

In some subjects and fields of research, and for some research problems, such as those involving political and historical issues, the only data available for researchers may be secondary. Such data can assist researchers to gain a better grasp of the historical context of the research problem by analysing data collected earlier on similar issues. Secondary data may also be used for comparative purposes. Hyman (1987, p.17) believes that

> *"secondary analysis of a series of comparable surveys from different points in time provides one of the rare avenues for the empirical description of long-term changes and for examining the way phenomena vary under the contrasted conditions operative in one [or several] society[ies] at several points".*

- ***Methodological reasons***

Secondary data are also popular because of the methodological advantages they provide. These are:

1. Reliable and accurate secondary data provide opportunities for *replication*, which means that the current research can appear in a number of future studies, giving it more credibility.
2. It is possible to use longitudinal research designs, as the data are available over a period of time.

3. Secondary analysis may enhance the measurement by expanding the scope of independent variables used in the operationalisation of concepts.
4. Secondary data enable the researcher to increase sample size and the number of observations, leading to more encompassing generalisations.

- ***Economic reasons***

A third reason for the increasing dependency on secondary data is that they are less expensive than primary data.

Disadvantages of using secondary data

The use of secondary data, as with any other type, has its share of disadvantages. One of the major problems is that they are often at best an approximation to the kind of data the researcher would like to employ in testing hypotheses (Nachmias and Nachmias, 2002). There is bound to be a considerable difference between primary data collected personally by the researcher with specific research purposes and intentions in mind, and the data others have collected for other purposes.

Another problem with secondary data is the issue of access. Researchers might face difficulties in finding data related to the research problem, which might be inaccessible because the original researcher has not put them in the public domain. It is not mandatory for researchers to make their data available for secondary users. Finally, if the researcher lacks information on how the data were collected in the first place, it may to some extent compromise secondary data analysis, as this information is important in determining any potential sources of error or bias and any problems with internal or external validity (Nachmias and Nachmias, 2002).

Whatever type of data is collected and whatever method is used, the issues of validity and reliability arise; these are considered next.

6.6 Validity and Reliability

For a good measurement tool, validity and reliability are two essential characteristics (Zikmund, 2000). The relation between these concepts is such that a test can be

reliable without being valid, but cannot be valid if unreliable. Thus, reliability is a necessary but not sufficient condition of validity (Salkind, 2000).

The validity and reliability of research depend greatly on the type and accuracy of the data used. Seen in this light, data should be examined and tested critically so that the results can be relied upon. Results can be considered reliable when the same results are reported on every occasion on which the same tests are carried out. Validity is one of the concepts used to determine how good an answer is provided by research (Alarfaj, 1996). According to Cooper and Emory (1995), validity is the capability of the research tools to measure what they are required to measure.

The criteria of reliability and validity were considered carefully in this research, since only a reliable and valid instrument will yield accurate results. Each concept is described in detail in the following sections, which conclude this first part of the chapter.

6.6.1 Reliability

According to Easterby-Smith *et al.* (2002), reliability refers to the extent to which data collection techniques or analysis procedures will yield consistent findings. It can be assessed by asking the following three questions:

1. Will the same results be obtained by the measures used on other occasions?
2. Will similar findings be obtained by other researchers?
3. Is the process through which sense was made of the raw data transparent?

Reliability is the degree to which measures are free from error and hence the degree of consistency of results across time and across the various items (Sekaran, 2003; Zikmund, 2000). The concept is defined by the two underlying dimensions of repeatability and internal consistency, through which the reliability and the goodness of the measure are assessed (Salkind, 2000; Zikmund, 2000). Two devices, the test-retest and parallel-form methods, are used in assessing *repeatability* (Sekaran, 2003).

The test-retest method estimates reliability by repeating the same questions after an interval of a few weeks and then correlating the answers obtained on each occasion. A high degree of correlation signifies the reliability of the questions or measures.

In the parallel-form method two parallel versions of a measuring tool are administered to the same group of research participants/respondents. If the correlation between the responses of the group to the parallel versions is high, this signifies that the questions are reliable. However, one potential problem with this method is the difficulty faced in determining whether the two parallel versions of the tool are, in fact, actually parallel.

To measure *internal consistency*, the split-half or Cronbach's alpha methods are used:

In the split-half method, a measuring instrument is split into two or more parts as a separate scale and each of these parts is scored accordingly. A high correlation between the answers obtained from all the different parts signifies a high reliability of the questions. De Vaus (1996) suggests that using multiple-item indicators increases reliability.

The Cronbach's alpha measure is based on the average correlation of items within a test, in case of standardized items. If the items are not standardized, the average covariance between the items is used. The Cronbach's alpha value ranges from 0-1 and the closer it is to 1, the higher the internal consistency and reliability.

6.6.2 Validity

Zikmund (2000) defines validity as the ability of the measuring instrument to measure what it is intended to measure, while Ticehurst and Veal (2000) refer to the extent to which information collected in a research study truly reflects the phenomenon being studied. If the measurement tool does not measure what it is designed to measure, problems will occur. Validity is an important issue of concern for researchers, since it is the validity of the measuring instrument that determines the confidence researchers have in the result/outcomes of the study. There are several types of validity tests:

Content validity is concerned with ensuring that the measure contains a sufficient and representative set of the topic under study. It may be assessed through careful definition of the research topic, the items to be scaled and the scale to be used. This

process of assessing content validity is to an extent intuitive, subjective and unique for each researcher (Emory, 1985).

Criterion-related validity measures how good a particular set of scores obtained from a particular measurement procedure is in relation to a chosen criterion (Suen and Ary, 1989). It is estimated empirically and quantitatively through a statistical correlation between the set of scores obtained from a measurement procedure and those obtained from an alternative method of measuring the criterion.

Construct validity is the assessment of how well a measuring instrument is related to the theoretical concepts and assumptions underlying the research (Nachmias and Nachmias, 2002).

In the research methodology literature, the assessment of validity is often considered under the heading of either internal or external validity (Yin, 1994; Gill and Johnson, 1991). The former refers to whether or not what are identified as the causes actually produce what has been interpreted as effects or responses and checks whether the right cause-and-effect relationships have been established. Thus, internal validity is the issue of establishing theoretical territory that goes with the defined construct and ensuring consistency between it and other recognised constructs. External validity, on the other hand, refers to the extent to which any research findings can be generalised beyond the immediate research sample or setting in which the research took place; thus the extent to which universal conclusions may be drawn from the findings.

PART TWO

6.7 Research Design

Against the theoretical background to methodology considered in the first part of the chapter, this section describes the research design that was used to conduct this particular research, beginning with a review of the literature on the evaluation of the BSC as a tool for performance measurement. Following the literature review, the research questions were framed and the case-study method was selected to investigate the research questions. Sequencing of data collection was done, as it was necessary to conduct interviews before the questionnaire was administered. Interviews were first conducted with selected top and middle-level managers in the company chosen for the case study and a questionnaire survey was then administered to these and other managers in the company. The qualitative data was analysed using content analysis, while statistical tools were used to analyse quantitative data.

6.7.1 Literature Review

The literature review examined previous research on the topic. It encompassed research projects and bibliographic material and the principle was to review the scholarly literature relevant to the topic. For the purpose of structural clarity, it was divided into two chapters. Chapter Four discussed performance measurement and its influence on the corporation, dealing with financial performance measures and a variety of performance measurement models. Chapter five then discussed in detail BSC evaluation and critical success factors.

The research objectives emerged from the review of the BSC literature, being framed with reference to previous research done on the topic and with the aim of making a contribution to the field. A gap exists in the literature in terms of research done on BSC implementation in Saudi Aramco, the only national oil company in Saudi Arabia. Studying the implementation of BSC in an organisation so critical to the

Saudi economy—and indeed the world economy[26]—is highly desirable. This research intends to fill this gap.

6.7.2 Research Objectives

This research aims to study Saudi Aramco in terms of the following research objectives:

1. To investigate whether all middle and top-level managers in the Financial Accounting and Corporate Planning departments of Saudi Aramco have the same understanding of BSC. Is it a strategy map for Saudi Aramco?
2. To investigate how BSC has been implemented in Saudi Aramco. Was the process sequential or was it implemented all at one time and why was this choice made?
3. To investigate how difficult the implementation process was.
    a. Was the change process an important element in BSC implementation?
    b. Was it a problem simply of change, or was it specific to the BSC?
4. To investigate whether all managers in Saudi Aramco have the same understanding of 'change'. Was BSC forced from the top down or did it evolve from the bottom up?
5. To investigate whether BSC has any influence on Saudi Aramco's strategic decision-making or whether it is a mere description of strategy in the company.
6. To discover whether the understanding of BSC in Western countries translates to Saudi Arabia. How does the decentralisation focus of BSC fit in with the Saudi economic culture of centralisation?

This is not intended to be a comparative study of BSC implementation in different organisations, but a comprehensive analysis of BSC implementation in one state-owned enterprise, namely Saudi Aramco. A major part of this study aims to assess the use of BSC as a tool for improving and measuring company performance.

[26] For example, the International Monetary Fund (IMF) reported that in 2006, oil export revenues accounted for around 90 percent of total Saudi export earnings, 70-80 percent of state revenues, and more 50 percent of the country's gross domestic product (GDP).

Generally, this particular research can be categorised as having adopted mixed methods. To be more concrete, the researcher sought to obtain a variety of information on the same issue; to use the strengths of each method to overcome the deficiencies of the other; to achieve a higher degree of validity and reliability; and to overcome the deficiencies of single-method studies (Blaikie, 1988; Burgess, 1984).

In terms of validity, it is not intended to generalise the findings of this research to other oil companies or SOEs. It is known that cultural, legal and political differences between countries make it impossible to extrapolate findings from one context to another. Hence, external validity is not a concern here; instead, the focus is on internal validity. In other words, could the research be repeated to produce the same results? The research was designed so as to achieve internal validity.

6.7.3 Justification for Using the Case Study Method

Two main methods have been used in other similar research into BSC as a tool for performance measurement: case studies (Letza, 1996; Butler *et al.*, 1997; Malmi, 2001) and surveys (see Chapter 5).

The case study method was found suitable for this study, as it was possible to provide an in-depth understanding of the processes taking place behind the implementation of BSC as a tool for improving and measuring company performance in Aramco. Importantly, Case studies provide rich and deep insights into the practices of the organisation being investigated. Remenyi *et al.* (1998) discuss two important features of the case study: it can provide valid and reliable evidence, and it can also be used as a vehicle for creating a narrative description of the situation being studied. Consequently, the case study, as a part of this research, aims to investigate how the BSC is being implemented in Saudi Aramco.

It is important to remember that the research is exploratory in nature, that the phenomenon under investigation (BSC implementation) is quite complex and that it does not have uniformity. Consequently, the case study method is appropriate because it is a powerful methodology, as was shown earlier in this chapter (Section 6.5.1), for studying a complex phenomenon such as BSC implementation (Yin, 2003).

In order to ensure the validity and reliability of the present study, the questionnaire and interview methods were used to fulfil the research objective; the justifications for using these techniques have been presented earlier in this chapter (Section 6.5.1.3 and 6.5.1.4). Similarly, the researcher set high quality standards and has developed many unique plans in order to monitor and encourage the highest quality work. In fact, the research and experimental site development was characterised by originality and emerging ideas.

6.8 The Case Study – Saudi Aramco

This section gives a brief outline of Saudi Aramco (a more detailed description having been presented in Chapter Three). It also sets out a justification for selecting Saudi Aramco as the case study.

6.8.1 Saudi Aramco

Saudi Aramco is an NOC fully owned by the government of Saudi Arabia. It engages in activities relating to all segments of the oil industry and its other associated and complementary industries in the Kingdom; through its subsidiaries, it also conducts related activities abroad. Saudi Aramco is an integrated oil company with operations in exploration, production, refining, marketing and international shipping. It is the world's largest producer of petroleum. It is a state-run concern which also manages Saudi Arabia's domestic refining capacity, marketing, distribution and joint-venture refining interests. It operates in partnership with Shell under the name of SASREF and with ExxonMobil under the name of SAMREF.

As mentioned earlier, this research is not concerned with generalising the findings to other SOEs in other countries. This research is related only to Saudi Aramco and as such the methodology is designed to produce only internal validity.

6.8.2 Reasons for Selecting Saudi Aramco

The reasons for the selection of Saudi Aramco have been presented in Chapter three (section 3.1). They are represented here for clarity purpose.

a) It is amongst the largest corporations in the world.
b) It is ranked in the 2007 Energy Intelligence Research as the world's largest oil company.
c) It is a very important organisation in the context not just of Saudi Arabia but of the world economy because of the nature of its business.
d) Domestically, its performance has a great impact on the whole Saudi economy. Saudi Aramco has introduced BSC with a view to improving its performance. Hence, studying BSC implementation in Saudi Aramco is a very important research objective.
e) There has been no previous research done on the topic in this company. There is a likelihood that considerable differences exist between the way BSC is understood and implemented in Saudi Arabia and in Western countries.
f) The organisation had already partly implemented or was in the process of implementing BSC.

Finally, although NOCs play a central role in the economies of the Middle East and North Africa[27], it is quite striking that there is little scholarly interest in the mechanics and forces driving the oil industry. A survey of sources available in Arabic demonstrates a weak scientific and academic interest in the region's oil and gas industry, very few books having been published on this subject. This is partly because articles are the preferred publication format of the region's academics; and in this format, oil is treated more often as a subject of political commentary than of industrial analysis. The main concerns are geopolitics, geostrategy, war and US interests. There is little analysis in Arabic on (non-political) industry concerns (Marcel, 2006). All these factors make Saudi Aramco a necessary and interesting case-study.

[27] Current estimates indicate that the Middle East and North Africa have some 63% of all of the world's proven oil resources and some 37% of its gas. Saudi Arabia alone was estimated to have roughly 25% of the world proven oil resources and 4% of its gas (Centre of Strategic and International Studies, US, 2005).

6.8.3 Sequencing of Data Collection

One of the major objectives of this research is to understand how the BSC has been implemented in Saudi Aramco. This kind of research has not been done before on such a large and economically important organisation as Saudi Aramco. Hence, it was considered imperative that interviews with more open questions be conducted first in order to source ideas on how the implementation process works and to learn more about it. That is, the fundamental purpose of the interviews was to allow thems to emerge; this was a discovery purpose as well as an understading of the BSC implementation process at Saudi Aramco. A survey of middle managers were then conducted using a structured questionnaire, whose source of questions were the emergent issues from the interviews as well as those identified from the literature search. The structured questionnaire therefore further established the internal validity of these identified issues. Consequently, this researcher first conducted interviews, which for triangulation purposes were supplemented by a questionnaire survey with more closed questions, as it is quite possible that what emerged from the interviews might be the personal views of the interviewees and not necessarily a true reflection of events in the organisation.

6.8.4 Interviews in Aramco

Information was to be collected from interviews with people who had key roles in relation to the organisation's BSC implementation. Appointments for the interviews were made and confirmed by telephone. All the interviews were conducted at the head office and recorded by consent of the interviewee. The length of interviews varied, mainly due to the availability of the interviewees; on average, each lasted about an hour. Data collected from face-to-face interviews and from documents provided by the organisations had to be analysed. The documents provided were not considered as secondary data but were very useful for triangulation purposes, confirming the data obtained from interviews. This was seen to be the most suitable approach, mainly due to the exploratory nature of the study, which meant that a comprehensive discussion was required regarding several issues. Therefore, open-ended questions were used.

The number of interviews that could be conducted was limited by the availability of time and resources. Follow-up phone calls were made to cover some aspects that were not fully covered in the face-face interviews. The researcher was forced to look for an alternative data-gathering methodology because the traditional face-to-face approach was encountering some difficulty. It was also becoming increasingly difficult to obtain interviews from those sampled, because selected respondents were often difficult to locate or were unavailable because of commitments to the labour force. Therefore, telephone calls were used to interview those who could not be interviewed face-face. Telephone surveys have gained general acceptance as a legitimate method of data collection in the social sciences.

In order to give structure to the interviews, some guidelines were prepared and documented. These were meant to help the interviewer and were not available for the interviewees to read. They were based on outcomes and aimed to achieve the study objectives. Interviewees were encouraged to talk about any issues that they felt were important, to ensure that the various elements of BSC implementation were addressed (See Appendix A). All critical factors were covered in the interviews, and there was flexibility to rephrase or reframe questions according to the context of a particular interview.

The sound recordings of the interviews were later transcribed. This data and material from documents[28] were put together to create a picture of the process of using BSC implementation as a tool for improving and measuring company performance. The data analysis process also enabled a description to be given of the change process followed, the methods used and some of the factors that affected implementation.

6.8.5 Issues Relating to Gathering Information from Saudi Aramco

It was extremely difficult to gain access to employees of Saudi Aramco. This may be partly because of local cultural factors and also probably to the strategic nature of oil

[28] Some interviewees were hesitant to answer questions and preferred to give the researcher documents from the organisation in response to some questions. This raises the issue of internal validity, as no triangulation in data collection was possible. There was no way of knowing whether what the interviewee did was consistent with the content of the documents, representing company policy, not actual practice.

the business and to company policy. Interviewees were typically elite members of Saudi society. Therefore, arranging interviews with them took considerable time and in many cases it was difficult to obtain an appointment for the interview. In other cases, interviews were cancelled and had to be rescheduled to suit the interviewee. Difficulties were faced in convincing Saudi Aramco to allow this researcher to conduct research in the company. However, as Marcel (2006) notes, it is entirely justifiable for commercial entities to be cautious about accepting an outsider's request to collect data on their strategy and outlook. This reluctance appears to stem from the specific corporate culture that exists in the Middle East. This is changing, however, and companies there are communicating increasingly with the outside world.

Some interviewees, especially expatriate managers (foreign nationals), did not want the interviews to be taped. The interviewer had to take written notes during the course of such interviews and it is possible that valuable data may have been lost in doing so.

6.8.6 Questionnaire Design and Planning

During the design and planning phase of a study, a researcher can take many steps to ensure that the question-answer process proceeds as smoothly as possible, thereby avoiding errors and improving data quality. A well-designed questionnaire is the first step in preventing errors. A good questionnaire reduces both respondent and interviewer errors (Fowler, 1991). In general, questionnaires usually consist of three kinds of item. The first type is factual questions dealing with the participant's background and characteristics, such as age, marital status, nationality, education and gender. The second kind comprises administrative questions, which provide data on the place, date and conditions of the interview. The third type consists of measurement or subjective questions, which are usually the most important items in any questionnaire. These measurement questions could be facts, preferences, attitudes, ideas, prejudices, or perceptions about a specific issue (Cooper and Emory, 1995; Nachmias and Nachmias, 2002).

Rummel and Ballaine (1963) specify that questionnaires should be long enough to cover essential elements of the research, but not too long, to the degree that respondents might consider them too time-consuming. They maintain that short

questionnaires have a better chance of being answered and that as a result the response rate will be higher. They also recommend that the researcher should design a questionnaire that will secure adequate data and distribute a larger number to offset any possible low return rate. In addition, it is important to take into account the recommendation of Alreck and Settle (1995) that questionnaires should be focused on the topic, using items which are simple, clear and short, while conveying the full intended meaning.

In the context of the present research there had to be an element of open-ended questions to allow for new themes and ideas to emerge. The legal, economic and cultural settings are so different in Saudi Arabia that the literature may not be a good guide to the ideas to be explored at Saudi Aramco. The open questions were intended to allow for discoveries to take place.

According to McDaniel and Gates (2002), a questionnaire survey involves a series of logical steps. Figure 6.1 illustrates the ten steps in the questionnaire survey design process. While these may vary to some extent when performed by different researchers, all tend to follow the same general sequence.

The design of the questionnaire was based on the knowledge gained from the literature on performance measurement using BSC and its evaluation, and from the previously held interviews. The questionnaire was developed to collect data from a large sample of Aramco employees, in order to elicit their experience regarding elements and key factors in BSC implementation. The questionnaire had an embedded triangulation structure to reduce bias (McDaniel and Gates, 2002).

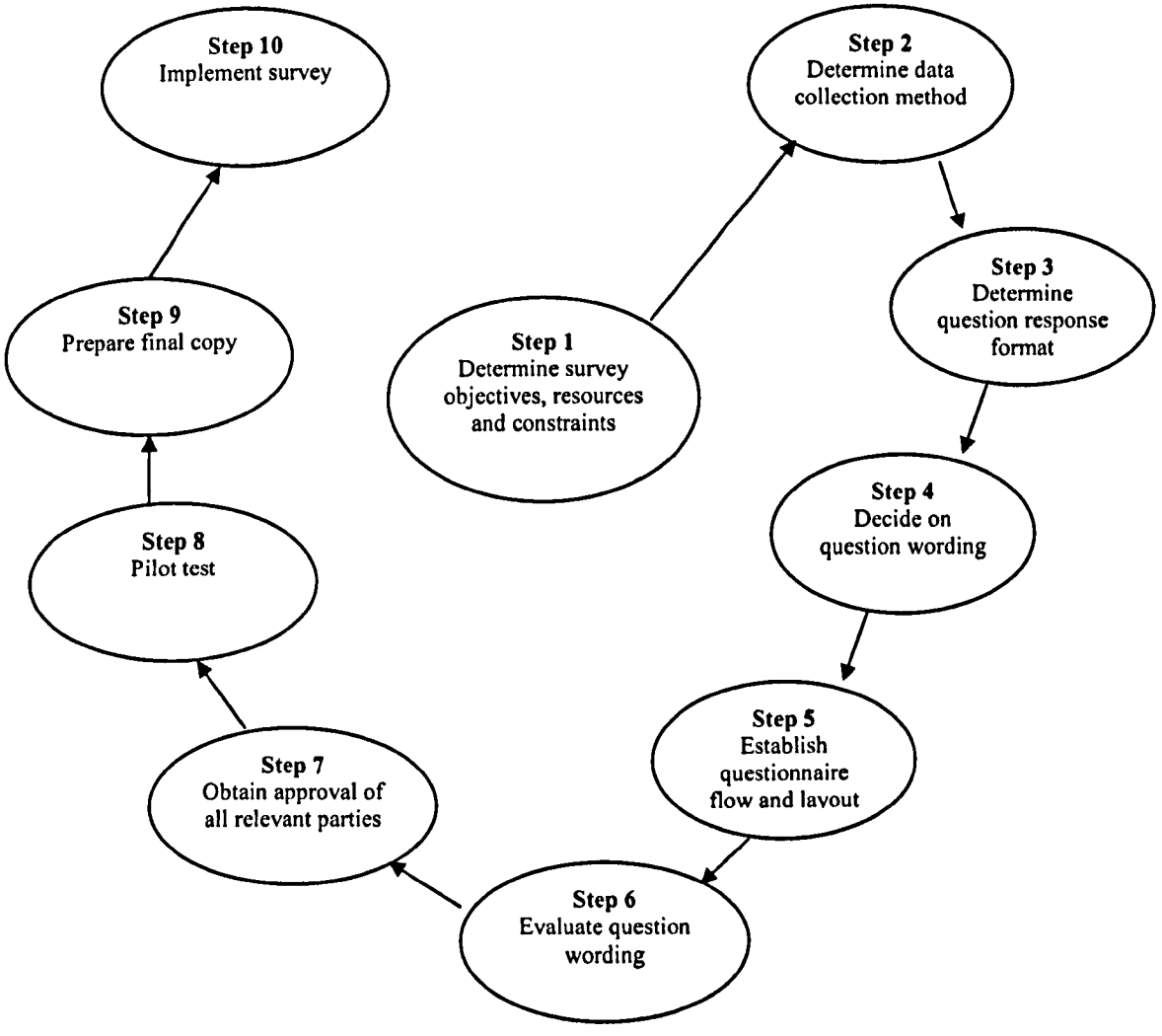


Figure 6.1 Questionnaire Survey Design Processes

Source: McDaniel and Gates (2002)

6.8.7 The pilot study

After the questions were designed, they needed to be tested. According to Oppenheim, (1992) questionnaires have to be designed, tried out, improved and then tried out again, often several times, until it is certain that they can do the job for which they are intended.

At the researcher's request, the questionnaire was reviewed by a number of academic researchers experienced in questionnaire design, then it was piloted to a group of accountancy PhD students and senior managers in Saudi Aramco, who contributed significantly to improving the questionnaire. The group of managers advised the deletion of any questions relating to the Saudi government because of confidentiality concerns. Some changes were made to the structure of the questionnaire in terms of identifying any ambiguity in the wording, poor ordering of questions, unnecessary items and the time needed to complete the questionnaire.

6.9 The Questionnaire Survey for the Aramco Case Study

For this research study, an online survey questionnaire method was chosen. The emails to the selected respondents were sent in February 2008 and the last response was obtained in August 2008.

6.9.1 Email Questionnaire

It was observed during the interviews that respondents wanted the questionnaire to be in email or online form. The reasons given included the lack of time for responding to paper-based questionnaires and the possibility of misplacing them. Security was another important concern, as the information provided might be confidential. The respondents felt that answering an online questionnaire would ensure that it would be received directly by the researcher. Attached to the questionnaire was a letter to the respondent explaining the purpose of the study and providing an assurance of confidentiality to the respondent and the organisation (See appendix B). Also attached was a letter from the Saudi Ministry of Petroleum, approving the research project. Initially 15 respondents answered the questionnaire. To improve the response rate, after three months, a reminder letter was sent to the prospective respondents (See appendix C), with the result that the number of respondents increased to 35.

In more general terms, the questionnaire explored respondents' understanding and assessment of the basic elements of improving management control systems. It was

also intended to study in detail aspects associated with success factors, objectives, management commitment and corporate culture. To this end, it comprised both closed- and open-ended items. The former, which are commonly used in questionnaires, require the respondent to choose among fixed responses on a five-point scale, which makes the questionnaire easy to complete and the results simple to analyse. The latter are not followed by any kind of specific choice; instead, each respondent can give a personal response in his/her own words. A few items also allowed respondents to add other options.

The following aspects of BSC implementation were examined in separate sections: Aims and objectives, management commitment, planning phase, development phase, implementation phase, benefit realisation, sustainability phase, and learning and innovation.

6.9.2 Respondents

The selection of respondents depends on the characteristics required by the research design (Oppenheim, 1992). The researcher made considerable efforts to identify the names and job titles of the targeted respondents in order to ensure that they had a sound knowledge of their performance measurement systems. However, several balanced scorecard studies (e.g. Sandt *et al.*, 2001; Olson and Slater, 2002) have addressed their postal questionnaires to senior mangers as appropriate respondents. Other BSC studies (e.g. Hoque and James, 2000; Maltz *et al.*, 2003) have included chief financial officers as being well informed about performance measurement systems. This research targeted finance accounting directors and corporate planning directors, because they were likely to be responsible for designing and operating the performance measurement systems in Saudi Aramco.

Response Rate

The online questionnaire was sent to 70 middle-level managers in the two departments of Finance and Corporate Planning, of whom 35 responded. The response rate of 50% compares well with similar studies elsewhere. Saunders *et al.* (1997)

expect the response rate to be generally between 30-50%. Of the 35 responses, 29 questionnaires (i.e. 41% of the total distributed) were deemed usable for analysis.

Table 6.5 Response rate

Description	Number	%
Distributed questionnaires	70	100%
Received questionnaires	35	50%
Usable questionnaires	29	41%

6.10 Summary

This chapter has reviewed and discussed the research design and methodology issues that researchers need to deal with. Additionally, it has attempted to explain briefly the features of quantitative and qualitative research and to justify the adoption of the triangulation approach, combining the quantitative and qualitative approaches in the collection and analysis of the data. Saudi Aramco, an SOE in Saudi Arabia, was the case study for understanding the implementation of BSC. In-depth interviews with senior vice presidents of finance and corporate planning, and other middle-level managers, provided data on their experiences and ideas concerning these particular issues. A website questionnaire survey was chosen in order to achieve triangulation. This allowed a richness of data and a comprehensive treatment of the elements which constitute a holistic approach to BSC implementation.

The validity and reliability of this study were discussed in some depth in this chapter. Internal validity and reliability were strengthened by using triangulation to minimise the weaknesses of the data collection methods. As it is not intended to generalise the findings of this research to other oil companies or SOEs, the research was designed to achieve internal validity only.

Chapter seven will deal with the analysis of the qualitative data obtained from interviews and documents; quantitative analysis will follow in the next chapter.

7. QUALITATIVE DATA ANALYSIS

7.1 Introduction

This study uses a combination of quantitative and qualitative approaches, the main methods of data collection being a population sample and a case study. These methods are combined in order to minimise the weaknesses of each and so to achieve the objectives of this research (see Chapter Six).

This chapter focuses on the description and analysis of the qualitative data collected in the case study of Saudi Aramco. For the purpose of triangulation, both primary and secondary data were collected, from interviews and from Saudi Aramco's corporate brochures and confidential documents respectively. The results obtained from questionnaires and interviews are discussed and the finding justified in Chapter Nine.

7.2 Interview Data and Interviewees

The discussion of the results includes quotes from interview respondents. As some interviewees wished to remain anonymous, due to the sensitivity of some of the issues explored, their names have not been mentioned. The interview data is classified according to the departments to which each interviewee belonged: the Finance Department (A) and the Corporate Planning Department (B). Those who belonged to neither of these departments are grouped into a separate section: 'Others' (C). There were three interviews in group A, with the Senior Vice President (SVP) (Finance), one senior manager and one general manager (GM); three in group B, with one Vice President (Corporate Planning), one general managers and one manager; and two in group C, with the President and Chief Executive, and with the Vice President (VP), Marketing and Supply Planning. The other case study data for the qualitative analysis was collected from confidential Saudi Aramco documents, public press releases on

the Aramco website, organisational records and field observations. Thus, triangulation was achieved by the use of both primary data from interviews and secondary data from confidential documents.

The interviews were semi-structured in order to ensure a degree of consistency, whilst allowing open-ended questions and responses. Of the eight interviewees, 6 were Saudi nationals and 2 were non-Saudi expatriates.[29] The differences in interpretation between the two groups will be dealt with in the discussion chapter.

7.3 Company Background

Because Saudi Aramco is the largest oil producer in the world, with 52,000 employees, and because it has a large amount of spare productive capacity, the Saudi national firm wields great power in international energy and financial markets. This means that the task of understanding its corporate culture, decision-making process, and past and future strategies is important in analyzing the future of the global energy market. To evaluate whether Saudi Arabia will be in a position to meet growing world demand for oil in the coming decades, one must take into account the operations of Saudi Aramco, because it is likely to have a pivotal, if not exclusive, role in implementing the expansion of oil production facilities in the Kingdom.

Like many national oil companies, Saudi Aramco's ability to perform its core upstream oilfield management and exploration function will be affected by other responsibilities it is assigned by the government and by its ability to generate sufficient capital to meet both these non-commercial national functions and its commercial goals.

[29] One of the expatriate managers from the USA was hesitant during the interview and refused to allow it to be recorded. He gave the general impression that he was not happy giving the interview and hence said very little.

7.3.1 The background of BSC in Saudi Aramco

In December 2000 a study by the McKinsey Group recommended that a performance management system should be applied to Industrial Relations (IR) in Saudi Aramco: "Top management .... should relinquish its current operational focus". Saudi Aramco accepted this recommendation and in July 2001 the CEO requested that key performance indicators be included in the 2004 operating plan. In March 2002 an IR self-assessment workshop concluded that it should act as one Business Line (BL) and selected the BSC as the tool of choice to help Saudi Aramco to do so.

7.3.2 BSC Project Teams

Three teams were involved in the Aramco BSC project:

- The leadership team, comprising the SVP, VPs and GMs. This set the strategic direction and defined the objectives.
- A core team of BSC Coordinator and SVP staff. This coordinated input for the monthly BSC meetings.
- A measures team, comprising key people who understood the business. These employees developed a meaningful set of measures.

7.4 Analysis of Interview Data

Saudi Aramco started to plan for BSC development in mid-2004. In 2005, a pilot study started in specific departments. At the end of 2005, the top management agreed to start BSC implementation, which then preceded one department at a time.

This analysis will examine the critical success factors identified in the literature review (see Chapter Five). The data from the interviews relating to each of these factors will be dealt with under separate headings. The implications of the results of this analysis in terms of the research objectives identified in the methodology chapter will be discussed in Chapter Nine. This framework for analysis and discussion was found to be the most suitable for this research.

7.4.1 Reasons for Implementing BSC in Saudi Aramco

When the interviewer asked why the firm needed to implement BSC, the following response was obtained:

> *"Why does Saudi Aramco need to change? What's wrong with carrying on as we are doing? What is Saudi Aramco doing now?"* (GM, A3).

He also pondered on the business challenges confronting Saudi Aramco:

> *"The Saudi population is currently increasing at about 3.2% a year, but future oil demand growth is estimated to be only 3%. ... Saudi Aramco is aware that oil is the major source of income for the Saudi economy. ...70% of the Saudi GDP comes from oil resources managed by Saudi Aramco".*

On the need to improve performance, another manager (B3) said:

> *"Aramco is not the same today as the past in terms of products, customers and geographical diversity. [It] is embarking on a major capital expenditure programme and it is our responsibility to contribute to the growth of the kingdom's economy".*

VP (Corporte Planning) (B1) said:

> *"The company needs to change for the following reasons. (1) Global future oil demand is growing and volatile; and there is an increased demand for cleaner fuels. (2) The Saudi population is growing at 3.2% per year while oil demand growth is predicted at only 3%, which would mean less money for more pockets. (3) The company finds it difficult to source employees & services out of North America, so Saudi workforce development is critical to our success and desire to commercialize innovations".*

Another executive from Saudi Aramco said that reasons for incorporating BSC were:

- *Saudi Aramco must act as one business line*
- *Strategic thinking by leadership is paramount*
- *Our efforts must support IR's strategies, mission and vision*

- *Normal performance levels are no longer acceptable*
- *Continuous change is the norm.*

Other points made were that Saudi Aramco's customers see the organisation as one service; that it is very important to give the leadership more opportunity to have time to act and think strategically, as the actions have to be in alignment with the leadership's strategic direction, and that customers are becoming more demanding, so Saudi Aramco needs to meet its customers' needs while monitoring the budget. Thus, Saudi Aramco is beginning to understand that change is the only constant.

7.5 Critical Success Factors

7.5.1 Vision, Mission, Values and Strategy

All of the interviewees felt that the BSC required clear vision, mission, values and strategy.

> *"By December 2004 Finance had adopted new mission and vision statements, setting its new direction"* (General Manager, A3).

This vision statement is: *"Finance, your partner in driving business performance"*. According to Aramco documents, the Finance Department has the following characteristics:

- "Recognized for enriching business decisions
  We contribute significantly to our stakeholders' decision-making process by providing highly regarded, sought-after, and value-added business advisory and support services. We also enhance the two-way transfer of knowledge and expertise, and foster corporate-wide financial acumen by preparing employees for leadership roles.
- Value for promoting a performance driven culture
  We enable the company to achieve its strategic and operational objectives by fostering a strategically aligned, metric-driven corporate culture. Business decisions are based on dynamic and innovative analyses of

reliable financial data, while corporate performance is gauged through rigorous evaluation against meaningful financial metrics.

- Admired for enabling all employees to excel

  We provide our people with the skills; experience and information they need to excel, and value their continued contributions to the company's success. Our employees are empowered to utilize their knowledge and expertise, are held accountable for their performance, and are rewarded for their achievements. Our work environment fosters teamwork, mutual respect, fairness, dedication and innovation.

- Known for effective integration of technology and talent

  We fully leverage technology to enhance the efficiency and accuracy of our transition processing function and to maintain the integrity of our control environment, while utilizing the talents and expertise of our people to provide essential, value-added advisory and support services to our customers" (Saudi Aramco Document, 2005).

A general manager in the Finance Department (A3) said:

> *"In support of this vision, Finance has developed 10 key initiatives to align the organisation with corporate strategic imperatives".*

In addition to these ten initiatives (set out in Table 7.1 below), a team was studying opportunities and best practises associated with providing financial analysis, business insight and management reporting capabilities. This effort would directly support those business lines who are tasked with making critical decisions in pursuit of corporate strategic imperatives 3, 4, and 5. These initiatives had been communicated to all finance employees and organized for implementation through project teams (Saudi Aramco document, 2005).

Table 7.1 Strategic Imperatives and Finance Initiatives

Corporate strategic imperatives	Finance Initiatives
1. Transform corporate performance	(a) streamline key finance processes (b) encourage & support innovation (c) streamline planning activities in the organisation (d) leverage IT / SAP
2. Optimize the corporate portfolio	(a) establish key performance indicators for finance (b) enhance corporate financial performance metrics (c) align organizational structure
3. Protect the future market for oil	
4. Maximize revenue by capturing oil growth opportunities	
5. Leverage oil & gas resources to expand the Kingdom's economy	
6. Prepare Saudi Aramco's workforce for the future	(a) develop a comprehensive human resource strategy (b) effective implementation of the performance management process (c) improve transparency in personal actions

Source: Saudi Aramco Document, 2005

The VP Corporate Planning (B1) agreed that the Finance Department must be transformed into a key business partner, requiring finance initiatives, which the interviewee identified as

> *"(a) optimize workforce capabilities; (b) improve the quality and timeliness of information to management; (c) establish and monitor a decision framework to drive internal capital allocation; (d) enhance the planning process to effectively integrate strategy with operations. ...These objectives are linked to the corporate strategic imperatives of transforming corporate performance to achieve best-in-class, optimizing the corporate portfolio and preparing the company's workforce for the future".*

The VP (B1) also pointed out that

> *"Stakeholders require Finance to provide the financial expertise and business acumen to ensure that business decisions across the company maximize shareholder value".*

The company's financial mission is "to enhance Saudi Aramco's competitive position in pursuit of its strategies by providing:

- Effective controllership and support of business performance management;

- Efficient, compliant transaction processing;
- Reliable and timely financial information; and
- Value added services that enable our customers to make informed business decisions" (Saudi Aramco document, 2005).

The VP (Marketing & Supply Planning) (C2) stated:

> *"At Saudi Aramco, our strategic vision encompasses what we call a 'tripod' of essential responsibilities. The three legs of this tripod stem from our position as the Kingdom's national oil company, our capabilities as Saudi Arabia's leading industrial enterprise and our stewardship of crude oil reserves. ...We are a state-owned firm; we operate on a commercial basis, just like any multinational oil company. In fact, our corporate mission is to engage in all activities related to the hydrocarbon industry, on a commercial basis and for the purpose of profit".*

Saudi Aramco's strategic direction is to contribute significantly to the Kingdom's revenue needs and to promote consistently the development of the local economy. A Corporate Planning Manager (B3) said:

> *"Our corporate strategic imperatives are (1) Transform corporate performance (2) Optimize the corporate portfolio (3) Protect the future market for oil (4) Maximize revenue by capturing oil growth opportunities (5) Leverage oil & gas resources to expand the kingdom's economy (6) Prepare Saudi Aramco's workforce for the future".*

A general manager in the Finance Department (A3) explained that :

> *"we arrange new teams which are responsible for developing the elements of the balanced scorecard ... First, a team develops the business line's Strategy Map, based on the new mission and vision statements."*

An expatriate expert (B2) described BSC as

> *"a management system (not only a measurement system) that enables Saudi Aramco to clarify their vision and strategy and translate them into action".*

7.5.2 Management Commitment

For the most part, the interviewees strongly agreed that management commitment and support were crucial factors for BSC success. They believed that motivation could come from senior managers and 'move up' to the chief executive officer (CEO), or could be ordered from the 'top down'. Table 7.2 summarises the management commitment to BSC.

Table 7.2 Reasons for top management support of BSC and nature of participation

Reason(s) for top management support of BSC at Aramco	Nature of participation
(a) Strategy management (b) Performance measurement	(a) Regular meetings (b) Reporting

All interviewees stated that top management had assumed responsibility for the success of performance measurement. By way of illustration, the VP (B1) said:

> *"The starting point to consider this tool this was the development of a mission and vision, which provide us with a basis to develop a plan for the future. ... "Vision is the change that you want to achieve, but strategy is the steps that management believes are important to achieve its vision. Corporate strategic imperatives and direction are set and driven by senior corporate management working closely with CEOs and CFOs of operating companies or divisions. ... "Strategies and objectives developed within organizations support the corporate strategic imperatives. ... Each financial leader described highly disciplined work environments in which rigorous management attention was devoted to defining and communicating clear strategic objectives, measuring performance, enforcing accountability, improving profitability and increasing shareholder value consistently across the company."*

The President and Chief Executive (C1) said about the corporate KPI effort:

> *"In my mind is a programme that is designed to give individual managers within the company the tools to measure their performance. ... We in*

management are facing many challenges these days. When I say 'we in management' I don't mean only corporate management, but I believe that at all levels, managers will have more freedom to do more and help the organisation to get better".

Another general manager (A3) said:

"Critically for managers, this KPI will allow them to demonstrate how they are adding value to help them tell a better story, to help to manage their job better, both in terms of cascading their expectations and in giving a sense of direction to their employees and supporting them".

The Senior Vice President, Finance (A1) said that KPI is a programme

"that is designed to give individual managers with the company the tools to measure their performance".

The Manager of Corporate Planning (B3) said:

"Our CEO and senior management have provided direction to guide us in developing a strategy to help meet the challenges the Kingdom faces".

The researcher attended a seminar on BSC at Saudi Aramco, where the speakers were the president and top managers. The president (C1) said:

"... the challenge is to ... [deliver] the best performance in Saudi Arabia, meaning that we – myself, my team and you – are all able to operate and be the custodians of Saudi Arabia, so our team performance and operation of the company must be better than anyone else. This is the challenge that is facing the company".

7.5.3 Planning Phase

Saudi Aramco believes that planning for BSC is crucial. All interviewees agreed that the firm had planned for BSC. They also insisted that without an accurate plan, the implementation of BSC would fail. The initial BSC was designed by an external consultant, and then it was implemented at corporate level by a team which the company appointed. The BSC was introduced in a specific department as a pilot; then,

after top management realised its benefits, it was implemented throughout the company.

The General Manager of the Finance Department (A3) reported that the Department had

> *"set three teams to work to evaluate the internal conditions of the business line. One team evaluated our customer's assessments of Saudi Aramco. The next team travelled the world surveying world-class organizations to gather an inventory of best practice. The third group worked with the Hackett Group[30] from Germany in benchmarking Saudi Aramco's attributes against a peer group and a group of world-class companies. By December 2004, Finance had adopted new mission and vision statements, setting its new direction."*

A senior expatriate manager (A2) said that the company had

> *"followed the top-down approach to communicating the BSC, and feedback was required from each department. ... The strategic objectives are determined by top management ...concise statements articulating specific components of what the strategy must achieve and what is critical to its success. ... Saudi Aramco provides employees with detailed guidance on the BSC project in PowerPoint, in English".*

The BSC implementation team had representatives from each operating area. A typical introduction consisted of a 9-step process, as shown in Table 7.3.

[30] The Hackett Group, a business advisory firm, is a world leader in best practice research and process benchmarking; analysis backed by research at nearly 2400 client organisations, including 97 percent of Dow Jones industrial, 81 percent of the fortune 100 and 92 percent of Dow Jones Global Titans index.

Table 7.3 Typical introduction process

	Activity	Status
1	Organization assessment	Complete
2	Identify strategic imperatives	Complete
3	Define perspectives and objectives	Complete
4	Develop a strategy map	Complete
5	Derive performance metrics (KPIs)	March, 2004
6	Craft and prioritize strategic initiatives	May, 2004
7	Automate and communicate	Ongoing
8	Cascade BSC through the organization	Ongoing
9	Collect data, evaluate and revise	Oct, 2004

Source: Saudi Aramco Documents, 2005

7.5.4 Development Phase

The interviewees were unanimous on the importance of the development phase of BSC implementation. The participating company provided senior managers with training in BSC, following the Kaplan and Norton perspectives (financial, customer, internal process, and learning and growth).

The President and Chief Executive (C1) said:

> *"Saudi Aramco is not the same company it was 20 years ago – or even five years ago. We have gone from a focus on upstream crude oil activities to being a fully integrated, international hydrocarbon enterprise that includes refining, distribution, natural gas operations, international shipping, and a worldwide network of affiliates and joint ventures. This increased complexity calls for KPIs."*

The Manager of Corporate Planning (B3) confirmed that Saudi Aramco used the four perspectives referred to above and that the company would then

> *"identify objectives for each perspective and give a separate definition to each objective".*

The precise nature of these objectives was confirmed in company documentation:

1. Financial perspectives, divided into three objectives: (a) reduce cost and enhance revenue; (b) perform only highest value core services; and (c) support the local economy.
2. Customer perspectives, divided into four objectives: (a) achieve optimum quality and reliability; (b) coordinate International Oil Company (IOC)

activities; (c) achieve highest standard of safety and environment; (d) deploy technology and encourage innovation.

3. Internal business perspectives, divided into six objectives: (a) enhance efficiency of core processes; (b) utilize risk management; (c) support 'Saudized' contractors; (d) commercialize new revenue streams and pursue partnering opportunities; (e) deploy knowledge management; and (f) enhance workforce competency & create a learning environment.
4. Learning and growth, divided into two objectives: (a) enhance empowerment & accountability; and (b) envision future job requirements (Saudi Aramco Document, 2005) (see appendix G for Aramco Strategic Objectives).

A non-Saudi member of the implementation team (B2) made the following points:

"The balanced scorecard strategy map looks at the four different aspects or perspectives which build up an organization and develops measures which allow us to track and manage our performance. [The learning and growth perspective] is about us, people. It includes employee training and the company's cultural attitudes, related to both individuals and corporate self-improvement. Learning and growth is the essential foundation for the success of any organization. [The internal perspective] refers to our internal procedures and processes, making sure we have the resources needed to do our business and that we use them efficiently. Measures based on this perspective allow the managers to know how well their business is running and whether its products and services conform to customer requirements (i.e. the mission). [The customer perspective] recognizes the importance of customer focus and customer satisfaction in any business. This is a key perspective as, if not satisfied, customers will eventually find other suppliers or service providers that do meet their needs. [The financial & shareholder perspective] is important because we are in business to make money, so BSC does not disregard the traditional need for financial data. Timely and accurate financial data and management will always be a priority".

The VP of Corporate Planning (B1) stated that

> *"the strategic programme is integrated into our planning. It progresses in four phases: (a) formulating, which includes corporate strategic direction and corporate strategic imperatives; (b) development, which includes champions leading quarterly team meetings and aligning strategies with operations; (c) implementation, which includes management strategy and forum champions' recommendations; and (d) improvement, which includes a strategic planning workshop, scenario development and business line discussions".*

The company will continue initiatives to develop KPIs and evaluate the potential role of Business Units. The deployment of KPIs will further strengthen performance management, accountability, strategic decision making and transparency (Saudi Aramco document 2005).

In the Financial Department, the General Manager (A3) also referred to the need to

> *"...develop financial and non-financial Corporate KPIs. Long- and short-term targets should be subject of discussions and challenge during the corporate strategic planning workshops and Management Committee meetings. ... We have to monitor KPIs through Corporate Performance Management applications (On-line access Dashboard)".*

The Financial Manager (A3) said that the KPIs had been described as 'the measuring stick for success', but

> *"they did not say how we were going to achieve success. This was the role of initiatives, which are discrete actions that change the way we do things, leading to improvements in our KPIs. The KPIs and their targets are reflected on a management dashboard that alerts management that we are or are not meeting goals. The dashboard indicators appear in the form of red, yellow and green lights. If we reflect a red light on the dashboard, management is alerted that there could be a situation requiring managerial intervention".*

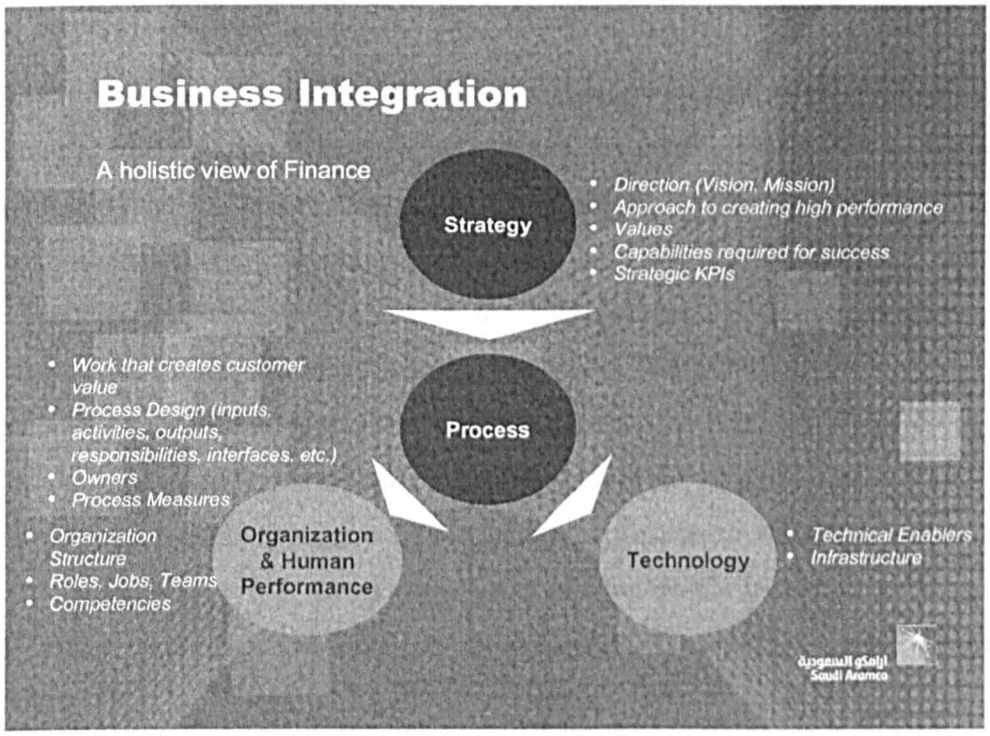


Figure 7.1 Business integration in Saudi Aramco

Source: Saudi Aramco document

The Financial General Manager (A3) said:

> *"Finance has engaged the Hackett Group to perform a benchmark study with a target delivery date of month-end February 2005. Hackett maintains a database of best practices of over 2400 clients, including all major oil companies. ... In addition to providing a benchmark study, Finance will have peer-to-peer contact for sharing best practices and access to Hackett's advisory services".*

The Senior Vice President (Finance) (A1) pointed out that

> *"the system is structured to offer an all-inclusive look at company-wide financial KPIs such as return on assets and capital performance; non-financial KPIs like safety and the environment, innovation and workforce development; and business-line-specific metrics such as operational performance and customer focus. KPIs build on the good work of my organisation in the areas of balanced scorecards and benchmarking".*

7.5.5 Implementation Phase

The BSC project had to be transferred from a strategic process to the implementation of a management control system in a more operational sense. Therefore, the deployment of the BSC implementation project plan had to be cascaded from the top to the bottom level. The company agreed that the deployment of the BSC implementation project plan was crucial for BSC success. The long-term plan was to implement BSC for the whole company in four years (2004-2008).

Each business has developed its own strategies to address its unique challenges, while directly supporting the company in following its corporate strategic direction and steadily implementing the recommendations of the corporate strategic imperative teams. These strategies are outlined in Appendix H for the Aramco Balanced Scorecard.

Long- and short-term targets are cascaded into the business and operating plans along with actions and initiatives to achieve these targets. Thus, the Manager (Corporate Planning) (B3) said:

> *"During the business plan, Saudi Aramco will implement appropriate measurement systems, including the balanced scorecard, to track performance against KPIs at the corporate and business levels. ... BSC and KPIs have been selected to help us ... and the top management agreed to start the implementation plan prepared by the BSC team".*

The Financial General Manager (A3) noted that cascading was a "critical component" of BSC implementation:

> *"Once the scorecard is in place at the top strategy-setting level of the organisation, each subordinate level of the organisation that sets strategy must go through the same process as its superior level, creating its own balanced scorecard. However, the subordinate unit must ensure that its balanced scorecard is in alignment with the superior unit's scorecard".*

7.5.6 Benefits Of BSC

The company expected to achieve many benefits through the implementation of BSC, which would enable it to pursue strategy and assess progress through regular measurements. The Manager (Corporate Planning) (B3) set out some of the many benefits of performance management for Saudi Aramco:

- *KPI will improve the focus of all business lines and administration areas on the business plan objectives (which will drive the business plan) and initiatives, thus reducing complexity.*
- *KPI will strengthen the links between strategic, long-range and tactical planning, as well as between commercial, national and global responsibilities.*
- *It will also strengthen performance management in the planning process.*

In another interview, the same interviewee stated that

> *"KPI will strengthen performance in the planning process, enabling Saudi Aramco to perform better and contributing to Aramco's success".*

7.5.7 Sustainability Phase

Saudi Aramco had to apply different methods that might help to achieve BSC sustainability.

One interviewee said that external communications would require

> *"a great deal of alignment, ... a great deal of accountability [and] a great deal of motivation".*

Another expatriate manager (B2) said:

> *"Measuring what we do means we can change our way of working, so we become more efficient. Instead of reporting the number of activities that we have performed, we will need to report the results of what we have done. This will be done using key performance indicators. In Saudi Aramco Terminal, KPIs and initiatives will be tracked under the SAP strategic enterprise management system using the BSC concept. The*

system is currently in use as a management tool to direct Terminal resources towards maximum performance".

Finally, the company conducts self-assessment annually, using the EFQM Excellence Model (Saudi Aramco document, 2005).

The Financial Manager (A3) explained that

"the initiatives are now part of our planning process and are embedded in our operating and business plans. Each year, the organisation must evaluate its performance, establish goals and KPIs where appropriate, and develop initiatives that will help them to achieve the goals. Reports that talk about 'business as usual' activities have diminished, with increased focus on change management. Reports on the status of our initiatives receive much greater managerial attention".

7.5.8 Learning and Innovation

Learning and innovation are increasingly viewed as decisive in whether an organisation is able to retain or improve its competitive position in the world economy. All interviewees agreed that learning and innovation were crucial to BSC success.

The Financial Manager (A3) said:

"Conventional management systems are based on financial measures. Financial measures tell a story of past events and are inadequate for guiding and evaluating the journey that enterprises must take to create future value through investment in customers, suppliers, employees and innovations".

The Corporate Planning Manager (B3) claimed that

"following the 'continuous improvement' philosophy, the organisation never rests on its laurels or basks in the glow of its successes for too long. Part of the human condition demands that we celebrate these successes for a time, but then we move on to the next improvement ...".

7.5.9 Obstacles

While the possible benefits of BSC are obvious, BSC implementation across the company in Saudi Arabia was expected to encounter many obstacles. One interviewee (B3) noted that these included culture;

> *"...but I think the most important one was the resistance from some employees".*

The General Financial Manager (A3) said:

> *"Resistance to change and lack of top management understating of the people aspect of change management are the main barriers that were encountered while implementing the BSC".*

The Financial senior Manager (A2) said:

> *"Key challenges faced by the company in implementing a proper strategic performance management system include clearly linking operational metrics to corporate objectives. Finance is taking a leadership role in developing corporate financial performance metrics".*

7.6 Summary

This chapter has provided a detailed description and analysis of the qualitative primary data collected. The CSFs for implementing BSC were identified, according to whether they concerned vision, mission, values and strategy, management commitment, the planning, development or implementation phases, the benefits of BSC, sustainability, or learning and innovation. From the interviewees' responses and perceptions, listed in Table 7.4, it was found that a number of the CSFs identified in the literature review also considered by Saudi Aramco in implementing the BSC.

Table 7.4 Summary of CSFs implemented in each phase of BSC

	Financial Department			Corporate Planning Department			Other Departments	
	A1	A2	A3	B1	B2	B3	C1	C2
Vision , Mission, Value and Strategy	√	√	√	√	√	√	√	√
Management Commitment								
Very important factor	√	√	√	√	√	√	√	√
Planning phase								
Choosing unit	√	√	√	√			√	√
Stimulation of culture	√		√	√	√	√		
BSC team	√	√	√	√	√	√	√	
Communicating BSC		√	√	√	√	√	√	
Developing phase								
Training	√		√		√	√		
Identifying BSC perspectives	Kaplan and Norton perspectives							
Setting objectives, measures, targets and initiatives	√	√	√		√	√	√	√
Final measures	√		√	√	√		√	√
Cause and effect linkage	√		√	√	√	√	√	√
Integration	√		√		√	√	√	√
KPIs	√	√	√	√	√	√	√	√
Implementation plan								
Developing implementation plan	√	√	√	√	√	√	√	√
Final BSC plan	√	√		√	√	√	√	√
Design of information system								
Cascading BSC	√	√	√	√	√	√	√	√
Personal BSC								
Rolling out implementation plan	√	√	√	√	√	√	√	√
Benefits of BSC								
Measurement assessment	√		√	√	√	√	√	√
Regular reporting	√	√		√	√		√	√
Problem solving	√			√		√	√	√
Action planning	√	√	√	√	√	√	√	√
Sustainability of BSC								
Automating BSC	SAP							
Regular communication			√		√		√	
Updating measures		√			√		√	
Reward and recognition		√		√				
Corporate alignment	√	√		√		√	√	√
Self-assessment through excellence models	√	√	√	√	√	√	√	√
Learning and Innovation	√	√	√	√	√	√	√	√
BSC Obstacles	√	√	√	√	√	√	√	√

Chapter Nine provides a comprehensive discussion and analysis of the results, as well as combining the findings of the qualitative and quantitative studies presented in Chapters Seven and Eight respectively, in order to obtain triangulation between the quantitative and qualitative data, and the relevant literature.

8. ANALYSIS OF THE QUANTITATIVE DATA

8.1 Introduction

The main objectives of this research are to study the concept of BSC as a tool for improving and measuring company performance, using Saudi Aramco as the organisation under study, to investigate the extent to which Saudi Aramco's managers understand the concepts of the BSC and to determine the extent to which Saudi Aramco managed the adoption of the BSC from initiation to final implementation. The study also examines other critical success factors in the operation of the BSC, such as management commitment, planning phase, implementation phase, the sustainability of BSC, learning and innovation, and the obstacles faced by organisation during their attempts to implement the BSC. The primary purpose of this chapter is to present the results of the quantitative analysis of the data collected using the structured questionnaire (Appendix B).

This chapter deals with quantitative analysis. The purposes of including such a survey in this research include the need to study the concept of BSC as a tool for improving and measuring company performance in Saudi Aramco, gain understand of how the management of Saudi Aramco perceived the BSC concept and its implementation and the identification of the major obstacles commonly found to affect BSC implementation.

The analysis and interpretation of any data depends on the objectives of the study and the nature of the data (Hussey and Hussey, 1997). Therefore, this study uses a combination of quantitative and qualitative methods, employing two main methods: a population sample and a case study. The purpose of this combination is to minimize the weaknesses of each method and so to achieve the objectives of this research (see Chapter six).

The main analysis techniques used are descriptive analysis, the one sample t test, the binomial (z proportions) test, factor analysis, reliability analysis and analysis of variance (ANOVA). The statistical package used to analyse the data was SPSS version 15. Descriptive analysis using frequency distributions provides information on the distribution of respondents' profiles and responses, while descriptive analysis of scores and values provides information on the mean, minimum, maximum and median values (where relevant), standard deviations and other relevant parameters. Descriptive analysis, which is also presented along with more formal analyses, is very important because it quantitatively summarises the dataset and hence provides the reader with the basic information about the respondents and the extent to which they perceive the application of BSC by Saudi Aramco. Descriptive analysis also provides a snapshot of the situation under study, thereby giving the reader an overall sense of the data being analysed. One sample t tests are important because they are used to compare the mean scores against selected values such as the neutral scores, enabling the researcher to draw conclusions on the extent of the application of BSC as perceived by the respondents. The z test compares values where proportions are important, in the case of categorical data. The two sample t test is used to compare two categories or variables, while ANOVA is used to compare more than two variables or categories. T tests, z tests and ANOVA are all robust inferential statistical techniques, which enable the researcher to draw conclusions that can be generalised. Factor analysis is used for two primary purposes: as a method for ensuring validity and to reduce the number of variables. Reliability analysis is used to test the quality of the summated scales of the reduced number of variables. Both validity and reliability techniques are discussed in detail in the relevant sections.

8.2 Respondent Profiles

A total of 29 Saudi Aramco employees responded to the questionnaire, using 31 CSFs identified from the literature review in Chapter Five. As 70 copies were distributed, this represents a response rate of 41%. The sample was relatively large and representative, given the limited number of management positions typical of a single

organisation. All the employees who responded worked for Saudi Aramco and most of them worked in departments that were quite large, with over 200 employees. Further, all employees were male.

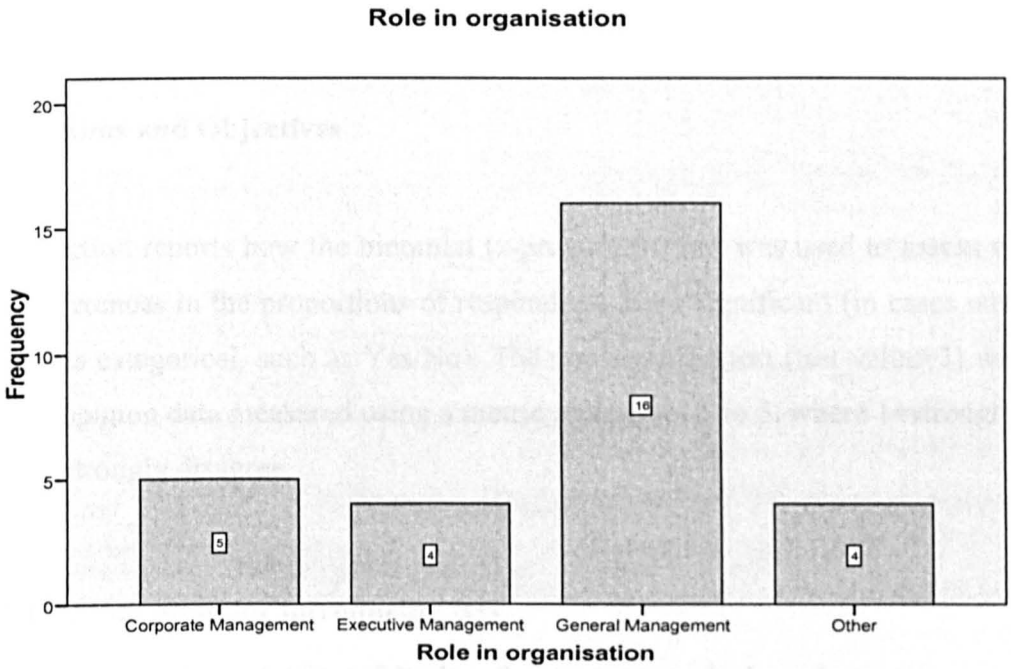


Figure 8.1 Role in organisation

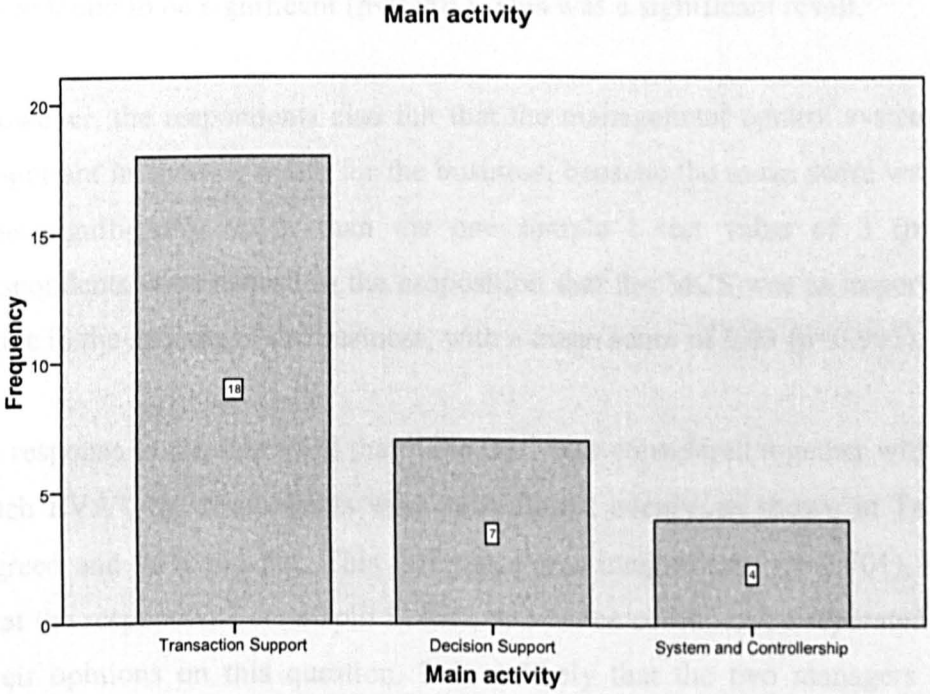


Figure 8.2 Activities in which respondents were engaged

Figure 8.1 shows the role of the respondents in the organisation. It can be seen that more than half were in general management roles. Figure 8.2 shows the main activities in which respondents were engaged within Saudi Aramco's departments. A clear majority worked in the Transaction Support Division.

8.3 Aims and Objectives

This section reports how the binomial (z-proportion) test was used to assess whether the differences in the proportions of respondents were significant (in cases where the data was categorical, such as Yes/No). The one sample t test (test value=3) was used to test opinion data measured using a metric scale from 1 to 5, where 1=strongly agree and 5=strongly disagree.

8.3.1 Motivation for introducing BSC

All the respondents (100%) felt that Saudi Aramco had a clear strategy, vision, mission and values, and 28 of the 29 (96%) felt that Saudi Aramco had clear objectives in its operating and business plans. Using the z-proportion test, both results were found to be significant ($p<0.001$). This was a significant result.

However, the respondents also felt that the management control system (MCS) was important in creating value for the business, because the mean score was 1.97, which was significantly lower than the one sample t test value of 3 ($p<0.001$). The respondents were neutral to the proposition that the MCS was as important as the oil price in the success of the business, with a mean score of 3.03 ($p=0.901$).

In response to the statement that "The BSC was considered together with other MCSs such EVA", the respondents were split almost evenly, as shown in Table 8.1: 56% agreed and 44% did not. This difference was insignificant ($p=0.701$), which means that the respondents were split in half, and hence could not be separated in respect of their opinions on this question. It is unlikely that the two managers who did not answer this question would make any difference in the proportions, because even if

both of them agreed, this would produce a ratio of 59% to 41%. Further exploration of the data showed that one these two respondents were in corporate management and the other was in general management.

Table 8.1 Binomial test

The BSC was considered together with other MCSs such EVA

Binomial Test

		Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)
A1.5	Group 1	Yes	15	.56	.50	.701[a]
	Group 2	No	12	.44		
	Total		27	1.00		

a. Based on Z Approximation.

To conclude, the evidence shows that all the respondents were clear about the mission and objectives for Saudi Aramco and the importance of MCS in the success of the business, but they were not convinced that the BSC was the only design for an MCS.

8.3.2 Purpose of Introducing the BSC

Table 8.2 shows the binomial tests for responses to statements concerning the purpose of BSC introduction.

The BSC was introduced to:

1) Improve profitability in the business
2) Replace a previous system which was not meeting the objectives of managerial control
3) Link or translate the strategy of the business to its operations
4) Identify key performance indicators for the business rather than link strategy to operations
5) Help managers in the business to measure and manage intangible assets for value creation, such as better customer relations and happier employees
6) Help managers manage the business in the best interest of the shareholders.

Table 8.2 Purpose of introducing BSC

Binomial Test

		Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)
A2.1	Group 1	No	9	.32	.50	.087[a]
	Group 2	Yes	19	.68		
	Total		28	1.00		
A2.2	Group 1	No	10	.34	.50	.136[a]
	Group 2	Yes	19	.66		
	Total		29	1.00		
A323	Group 1	Yes	26	.90	.50	.000[a]
	Group 2	No	3	.10		
	Total		29	1.00		
A2.4	Group 1	Yes	22	.76	.50	.008[a]
	Group 2	No	7	.24		
	Total		29	1.00		
A2.5	Group 1	Yes	27	.93	.50	.000[a]
	Group 2	No	2	.07		
	Total		29	1.00		
A2.6	Group 1	Yes	23	.79	.50	.002[a]
	Group 2	No	6	.21		
	Total		29	1.00		

a. Based on Z Approximation.

Table 8.2 shows that respondents did not have a unified opinion on propositions 1 or 2, concerning improving profitability (p=0.087) and replacing a system which was not meeting the objectives of managerial control (p=0.136). However, there were significantly more respondents who agreed with the remainder of the reasons for introducing the BSC. Therefore, on balance, the respondents agreed on the reasons for the introduction of the BSC.

8.3.3 Requirements for the Success of the BSC

The descriptive scores and the results of the one sample t tests for the requirements of the BSC are shown in Table 8.3.

Table 8.3 BSC requirements

BSC requirement	Mean	SD	P value
There would need to be changes in the business's organisational structure	1.93	.84	.000
It was recognised that senior management had to be committed	1.31	.47	.000
The senior managers must communicate the business strategy to middle managers	1.34	.67	.000
There has to be a clear cause and effect relationship between KPIs and the desired outcomes	1.41	.63	.000
Criteria need to be established by which to measure success	1.24	.44	.000

The results show scores ranging from 1.24 to 1.93, all of which were significantly lower than the neutral score of 3 ($p<0.001$). It may be concluded that all the above factors were considered necessary for the successful introduction of the BSC.

8.3.4 Conclusions on Aims and Objectives

On balance, there was a mix of opinions on the motivation for BSC and the reasons for introducing it, with slightly more general consensus on the latter. However, there was overwhelming agreement among the respondents on the requirements for successful implementation, those factors identified being considered necessary. The respondents did not add anything further.

8.4 Top Management Commitment

Table 8.4 shows the results concerning respondents' opinions of top management's commitment to BSC, where all the mean scores ranged from 2.03 to 2.31, significantly less than the neutral score of 3 ($p<0.001$). The conclusion is that the respondents felt that top management was committed to the BSC.

Table 8.4 Top management commitment to BSC

Management commitment item	Mean	SD	P value
M1: Top management has assumed responsibility for performance management success.	2.03	.82	.000
M2: Top management allocated adequate resources and time for the BSC project	2.28	.92	.000
M3: Top management is able to resolve conflicts in a way that maximises benefit to the company	2.31	.89	.000

Table 8.5 show the distribution of respondents' opinions with regard to who makes the final decision on operating plans. The results were that in 41% of the cases the company's top committee was thought to make the final decision; in 28% of the cases the Board of Directors was believed to do so, while in a substantial number of cases (17%), respondents felt that the CEO alone decided on the final version of the plan.

Table 8.5 and any other similar tables showing the 'Percent' and 'Valid Percent' columns are interpreted as follows. The 'Frequency' column shows the actual number of respondents; the 'Percent' column shows the percentage of the category based on the total sample (including those who did not answer); the 'Valid Percent' column shows the percentage expressed as a proportion of those who answered the question (excluding missing answers).

Table 8.5 Who has the authority on final version of plans?

Authority on final version

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	The Government	1	3.4	3.4	3.4
	CEO	5	17.2	17.2	20.7
	Board of the Company	8	27.6	27.6	48.3
	Top Committee of the Company	12	41.4	41.4	89.7
	Other	3	10.3	10.3	100.0
	Total	29	100.0	100.0	

8.4.1 Correlations among Management Commitment Items

In order to test whether the items used to measure the management commitment concepts were related, Pearson correlation tests were performed. Table 8.6 shows the results of these correlation tests.

Table 8.6 Correlations for management and commitment

Correlations

		M1	M2	M3
M1	Pearson Correlation	1	.787**	.618**
	Sig. (2-tailed)		.000	.000
	N	29	29	29
M2	Pearson Correlation	.787**	1	.675**
	Sig. (2-tailed)	.000		.000
	N	29	29	29
M3	Pearson Correlation	.618**	.675**	1
	Sig. (2-tailed)	.000	.000	
	N	29	29	29

**. Correlation is significant at the 0.01 level (2-tailed).

As shown in Table 8.6, the items were strongly correlated ($p<0.01$), indicating that they were likely to measure the same concepts. However, a more definitive and robust test is needed to confirm the nature of the underlying relationships. This can be achieved using factor analysis, which is described below.

8.4.2 Factor Analysis of the Management Commitment Construct

In order to ensure that the management commitment construct was appropriately measured conceptually, it was tested using factor analysis. According to Hair et al (2005, p88), as the number of variables (or items) used to measure a construct increases, there is a commensurate need for increased knowledge of the structure and interrelationships of the variables. Factor analysis has been found to be an ideal technique for this in business-related research, because it can effectively analyse the patterns of complex multidimensional relationships encountered in a study like this one. Factor analysis can then be utilised to determine whether the variables/items can be condensed or summarised into a single component or a small number of components.

Factor analysis was therefore used to determine the extent to which the three items explained the management commitment concept. The principal component analysis technique with varimax rotation was used, as recommended by Field (2005) and by Hair et al (2005).

Before interpreting the results of a factor analysis, it is crucial to look at two important statistics, which are part of the assumptions: the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity. These are shown in Table 8.7.

Table 8.7 KMO and Bartlett sphericity tests for management commitment

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.710
Bartlett's Test of Sphericity	Approx. Chi-Square	42.195
	df	3
	Sig.	.000

The KMO measure of sampling adequacy was found to be 0.71. The KMO statistic varies between 0 and 1. A value of 0 indicates that factor analysis is likely to inappropriate, while a value of 1 indicates that patterns of correlations are relatively compact and so factor analysis should yield distinct and reliable factors. KMO values of greater than 0.60 are considered adequate (Field, 2005, p640). Hence, although the sample size of 29 was small, it was deemed adequate for factor analysis.

The Bartlett sphericity test tests for the assumption of sphericity; that is, whether the diagonal elements of the variance-covariance matrix are equal and that the dependent variables are not correlated. The p value was significant ($p<0.000$), indicating that this assumption was satisfied.

Having satisfied the assumptions, we can now interpret the results of the factor analysis. First we look at the component matrix (or factor loadings). Table 8.8 shows the factor loadings for this concept.

Table 8.8 Factor loadings or component matrix for management commitment

Component Matrix[a]

	Component
	1
M1	.902
M2	.924
M3	.850

Extraction Method: Principal Component Analysis.

a. 1 component extracted

Factor loadings vary between 0 and 1. According to Field (2005, p637), typical factor loadings of greater than 0.3 are considered important and the higher the better. In this analysis, the factor loadings ranged from .850 to .924. These are really very high loadings, reflecting the importance, relevance and closeness of the items used.

The next and arguably the most important parameter to be checked was the total variance explained by the factor solution(s). This is shown in Table 8.9.

Table 8.9 Total variance explained by the management commitment factor

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.390	79.652	79.652	2.390	79.652	79.652
2	.404	13.461	93.113			
3	.207	6.887	100.000			

Extraction Method: Principal Component Analysis.

As shown in Table 8.9, the total variance explained by this single factor is 80%, which is in the 'excellent' range. This is because the generally accepted minimum variance is 50% (Field, 2005) and any value above 70% is considered very good, while one of 80% and higher is deemed excellent. We can therefore conclude that the management commitment concept was appropriately measured.

8.4.3 Conclusions on Management Commitment to BSC

The overall conclusion on management commitment is that top management was committed to BSC. This also largely explained by the fact that the company set up committees that made the bulk of decisions and that the top management supported these committees.

8.5 Planning Phase

8.5.1 Introducing BSC to Business Units/Departments

In choosing the unit, there was unanimous agreement with the statement that "There has to be a clear strategy during implementation of the BSC" (mean=1.45; $p<0.001$). This means that respondents felt that the BSC could not be implemented without a clear strategy and indicates that the managers understood this aspect of the BSC. This seems consistent with the finding that 71% of respondents said that the organisation carried out a strategic evaluation of each business unit before implementing BSC and this was significant ($p=0.036$). Also, in 89% of the cases, a pilot study was carried out before implementing the BSC.

Table 8.10 shows the departments in which the BSC was used. The distribution is topped by Business Line (36%), followed by Administration (25%), Department (21%) and Corporate (14%). The introduction was sequential, with the Corporate Department being first. In terms of staff, this department is relatively small, which may explain why it was the first choice.

Table 8.10 Divisions in which BSC was used

First use of BSC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Corporate Level	4	13.8	14.3	14.3
	Business Line	10	34.5	35.7	50.0
	Admin. area	7	24.1	25.0	75.0
	Department	6	20.7	21.4	96.4
	Other	1	3.4	3.6	100.0
	Total	28	96.6	100.0	
Missing	System	1	3.4		
Total		29	100.0		

NB: "Other" = division unknown

8.5.2 Stimulation of Culture

Many change programmes fail because they do not match the situation in which they are meant to operate. Organisational culture is a crucial factor that has significant influence on the success or failure of a change programme. It is well argued in the literature that the organisational climate set by top management is a factor that may help influence employees' perceptions of change. This is because employees will share perceptions of organisational policies, practices and procedures, both formal and informal. There is a high likelihood that a supportive climate will enhance communication and teamwork through the creation of an atmosphere of cooperation and openness. It is therefore unlikely that change programmes would be effective in a climate that is not conducive to change. It is also insufficient to match change to the context, but necessary to try to influence the organisational climate to create an optimum condition for implementing organisational strategies. For organisational factors such as teamwork and communication to succeed they need to be considered in the context of the organisation. Informed managerial strategy decisions need to be based on sound understanding of the organisational climate. In order to be able to align change with organisational climate, there is need for information about the effect of organisational climate on change. Consequently, an assessment of the culture and organisational climate at Saudi Aramco was conducted.

With regard to culture stimulation, 79% of respondents felt that Saudi Aramco's legacy system (business process, structure, culture and IT infrastructure) was

evaluated before BSC implementation, and this proportion was significant (p=0.004). Descriptive scores for the cultural items are shown in Table 8.11. They were quite low, ranging from 2.14 to 2.69. Two of the items were significant (p<0.05), while the other was not (p=0.083).

Table 8.11 Mean scores for cultural items

BSC Culture stimulation	Mean	SD	P value
P2.1: Saudi Aramco educates and prepares its employees culturally for BSC implementation.	2.69	.93	.083
P2.3: The BSC in your organisation shifted managers' efforts from a single-minded focus on growth/financial figures to a broader set of objectives encompassing profitability and non-financial performance.	2.14	.88	.000
P2.4: The organisation's climate, culture & behaviour changed after implementation of BSC.	2.50	.96	.011

NB: P2.2 was a categorical Yes/No question, which was used for the legacy proportion (79%) described above.

The above results show that on balance the BSC could replace the old legacy system, because Saudi Aramco had created an organisational culture and climate conducive to change. It is clear that contrary to other organisations, where less senior managers might frustrate the successful implementation of a new idea; this was not a major constraint at Saudi Aramco.

However, the fact that the scores were not as low as 1 indicates the existence of some resistance by managers, albeit slight. Consequently, Pearson correlation tests were conducted on the responses for the three items (P2.1, P2.3, P2.4). The results, shown in Table 8.12, indicate that the correlations were positive and significant (p<0.05).

Table 8.12 Correlations on culture stimulation

Correlations

		P2.1	P2.3	P2.4
P2.1	Pearson Correlation	1	.493**	.456*
	Sig. (2-tailed)		.007	.015
	N	29	29	28
P2.3	Pearson Correlation	.493**	1	.821**
	Sig. (2-tailed)	.007		.000
	N	29	29	28
P2.4	Pearson Correlation	.456*	.821**	1
	Sig. (2-tailed)	.015	.000	
	N	28	28	28

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The results in Table 8.12 show that although the correlations were significant, the strength of the correlation was only moderate and not as strong as we would expect in the case of P2.1 and the other two variables (P2.3 and P2.4), indicating that P2.1 was relatively independent of the other two and that it had no significant effect on them. However, P2.3 and P2.4 were strongly correlated (r =0.821), which means that the adoption of BSC actually led to a culture change or that the culture enabled the BSC to be implemented smoothly (that is, P2.3 implied P2.4).

Given the fact that all three items were theoretically supposed to be related, factor analysis was used to determine the extent to which the three items explained the culture stimulation. The KMO measure of sampling adequacy was found to be 0.63. As noted above, KMO values of greater than 0.6 are considered adequate; hence, although the sample size of 29 was small, it was adequate for factor analysis. The Bartlett test had a p value that was significant ($p<0.000$), indicating that the sphericity assumption was satisfied.

Table 8.13 shows the total variance explained by the extracted factors. In this case, there was a single factor which explained 73.7% of the variance. This constitutes very strong evidence that the items used to measure stimulation of culture do so efficiently. We can conclude that the culture stimulation concept was measured appropriately.

Table 8.13 Variance explained by the cultural concepts

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.211	73.687	73.687	2.211	73.687	73.687
2	.614	20.454	94.141			
3	.176	5.859	100.000			

Extraction Method: Principal Component Analysis.

Table 8.14 Factor loadings for cultural stimulation for BSC by Saudi Aramco

BSC Culture stimulation	**Factor loading**
P2.1: Saudi Aramco educates and prepares its employees culturally for BSC implementation.	.734
P2.3: The BSC in your organisation shifted managers' efforts from a single-minded focus on growth/financial figures to a broader set of objectives that encompass profitability and non-financial performance	.925
P2.4: The organisation's climate, culture & behaviour changed after implementation of BSC.	.903

In conclusion, the stimulation of culture was found to be present both before and after implementation, because the mean score for the culture variable was significantly lower than the neutral score of 3 ($p<0.01$). Therefore, Saudi Aramco is found to have stimulated BSC culture among its employees.

8.5.3 Shareholders

The mean score for "The organisation identifies the critical processes that should be excelled at in order to meet the objectives of shareholders" was 1.45, which was significantly lower than the neutral score, indicating that Saudi Aramco was believed to have identified the critical processes that should be excelled at in order to meet the expectations of the only shareholder, which was the government.

8.5.4 Transfer Pricing

Table 8.15 shows how transfer prices were determined in Saudi Aramco. We see that the most common method cited by the 28 respondents who answered this question was Actual Cost (46%), followed by Market Based (25%) and Cost Plus (215), with only 7% being for other methods. This means either that the managers were not totally aware of the policy or, more likely, that Saudi Aramco uses different pricing strategies for different products.

Table 8.15 Transfer prices

Establishment of transfer prices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Actual Cost	13	44.8	46.4	46.4
	Market Base	7	24.1	25.0	71.4
	Cost Plus	6	20.7	21.4	92.9
	Other	2	6.9	7.1	100.0
	Total	28	96.6	100.0	
Missing	System	1	3.4		
Total		29	100.0		

When the managers were asked if they considered transfer pricing as a major issue in the design of the BSC, the mean score was 2.45, with a p value of 0.003, indicating that on balance the managers did not feel that transfer pricing would cause problems in the implementation of the BSC.

8.5.5 BSC Team

Saudi Aramco was found to have approved a special team for the BSC project, with 93% of respondents agreeing with the statement. Respondents also felt that this team was visible and had access to senior and middle management ($p<0.001$), which is very strong evidence.

8.5.6 Communication

A significant (p=0.003) proportion of 79% felt that Saudi Aramco provided some commentary and written guidelines for the users of the BSC. However, with regard to communication of BSC throughout Aramco from top to bottom, the mean score was 2.45, which was insignificant (p =0.202). This implies that communication of BSC was still a problem among some employees.

8.6 Development Phase

8.6.1 Training

Saudi Aramco appears to regard its employees as valuable, long-term resources worthy of education and training throughout their career, because the mean score on the relevant item was 2.07 (p<0.001). In addition, top management was felt to arrange adequate resources for employee education and training (p<0.001).

8.6.2 BSC Perspectives

Of the 29 respondents, 23 used the Kaplan-Norton four perspectives, while one used the European Foundation for Quality Management (EFQM); the remainder did not answer the question. Table 8.16 shows the results for the importance of the BSC perspectives. All were considered to be important, although when compared among themselves, the learning and growth perspective (mean=1.62) had the lowest score (most important), while the customer perspective had the highest (least important) score of 2.00.

Table 8.16 Importance of BSC perspectives

Importance of perspectives	Mean	SD	P value
Financial perspective	1.66	.94	.000
Customer perspective	2.00	1.07	.000
Internal Business Perspective	1.75	.89	.000
Learning and growth perspective	1.62	.86	.000

In terms of a BSC as a strategy map we would expect the learning and growth to be most important, since it maps into the internal business perspective, the customer perspective and ultimately the financial perspective. It is interesting to find that in a commodity business such as oil, customers were least important, because the customers of such businesses can easily switch suppliers, yet Saudi Aramco thought that this was the least important (at least at this phase), perhaps on the grounds that there would always be a demand for its products.

8.6.3 Objectives, Measures, Targets and Initiatives

Responses concerning the set of objectives, measures, targets and initiatives is shown in Table 8.17. The result show that these were felt to be achieved ($p<0.001$).

Table 8.17 Objectives, measures, targets and initiatives

Set of objectives, measures, targets and initiatives	Mean	SD	P value
D3.1: The organisation designs a set of key performance measures that quantify the achievement of objectives.	1.93	.80	.000
D3.2: Before implementing these measures, the organisation defines performance targets.	2.17	1.00	.000
D3.3: The organisation's measures are aligned to strategies.	2.00	.76	.000
D3.4: The organisation's KPI measures/results are regularly discussed in management meetings.	2.07	.92	.000

Factor analysis results produced a KMO of 0.778 and the Bartlett test result was significant, both indicating that the assumptions had been satisfied. The total factor loadings were very high, ranging from 0.791 to 0.859 (Table 8.18), which is well above the 0.35 cut-off point.

Table 8.18 Set of objectives, measures, targets and initiatives

Set of objectives, measures, targets and initiatives	Factor loadings
D3.1: The organisation designs a set of key performance measures that quantify the achievement of objectives.	.859
D3.2: Before implementing these measures, the organisation defines performance targets.	.912
D3.3: The organisation's measures are aligned to strategies.	.896
D3.4: The organisation's KPI measures/results are regularly discussed in management meetings.	.791

The total variance explained by a single factor was 75% (Table 8.19), which again is a very good result. We can therefore conclude that this concept was appropriately measured.

Table 8.19 Total variance explained for objectives, measures, targets and initiatives

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.998	74.942	74.942	2.998	74.942	74.942
2	.495	12.365	87.307			
3	.357	8.933	96.240			
4	.150	3.760	100.000			

Extraction Method: Principal Component Analysis.

When respondents were asked how many BSC measures their department or business unit used, 45% replied that their department used fewer than 10 measures; 38% that 11 to 20 measures were used and the balance of 17% that their department used more than 40 measures. Surprisingly, there were no results in the range 21 to 40 measures. According to Kaplan and Norton (2001), it is usually sufficient to have between 20 and 30 measures.

Interesting questions are why some departments used more than 40 measures and how the departments were able to interpret the outcomes. Cross tabulations were used to test whether the number of measures used was associated with the department. The

results are presented in Table 8.20, which shows no significant association between the role and the number of measures (Pearson chi square p=0.368).

Table 8.20 Correlation between department type and number of BSC measures

Main activity * D3.5 Crosstabulation

Count

		D3.5			
		Less than 10	11-20	More than 40	Total
Main activity	Transaction Support	8	7	3	18
	Decision Support	4	1	2	7
	System and Controllership	1	3	0	4
Total		13	11	5	29

NB: D3.5 is the number of BSC measures

An analysis of the data in Table 8.20 shows that different departments or sections within each department or business unit used different numbers of measures. For example, in the Corporate Management business unit, two departments used fewer than 10 measures, one used 11 to 20 and two used more than 40. A similar pattern applied to executive management and general management. This result may not be unexpected, given the fact that Saudi Aramco made a profit of $27 billion in 2005 when oil prices were very low and that it employs more than 52,000 people. Saudi Aramco also accounts for 54.6% of the country's GDP (SAMA, 2007). All these make Saudi Aramco virtually an economy on its own; hence there are many different types of entity within the corporation, leading to different business unit level strategies or systems and procedures.

Table 8.21 Benchmarks used to support decision making

Benchmark	**Frequency**	**%**
IRR	17	29
ROCE	16	28
Profit Margin	12	21
NPV	9	15
EVA	0	0
Others	4	7

Like many other companies, Saudi Aramco should ideally have benchmarks for performance measurement. Table 8.21 shows the frequency with which each of Saudi Aramco's benchmark was cited (respondents could select more than one). It shows that the two most popular benchmarks were IRR and ROCE (29% and 28% respectively), closely followed by profit margin (21%). Surprisingly, NPV, which is considered among the most robust techniques from a theoretical perspective, was in fourth position, accounting for only 15%. Even more surprising is the fact that no department was reported to use EVA. According to the Finance Manager of one division, the benchmark profit was a discount rate of 9.5% for upstream business units, while that for downstream business units (effectively companies) including tankers and petrochemicals was 9%; the discount rate for utilities, pipelines and water and electricity projects was 7.5%. There was no set of targets for ROCE. The benchmark for the IRR was that it should be always be a higher rate than or equal to the discount rate shown above.

About 38% of the respondents felt that some of these benchmarks had changed when the BSC was introduced, while 68% felt that the benchmarks had remained unchanged. The conclusion is that on balance, there was little change after the introduction of the BSC. Again, cross tabulations (chi square tests) showed no association between the department and whether the benchmarks had changed or not.

8.6.4 Cause and Effect Linkages, Integration and KPIs

Results for items concerning cause and effect linkages, integration and KPIs are shown in Table 8.22.

Table 8.22 Cause and effect linkages, integration and KPIs

Cause and effect linkages, integration and KPIs	Mean	SD	P value
It was difficult to integrate the BSC into existing management system (s).	2.36	.83	.000
The organisation's BSC provide cause & effect relationship.	2.38	.78	.000
KPIs can be introduced only with consideration of strategy.	1.72	.88	.000

All the above results are significant ($p<0.001$), indicating that Saudi Aramco performed well on these measures: cause and effect linkages, integration and KPIs.

8.6.5 Conclusion on the Development Phase

This section has discussed several different issues relating to the BSC development stage. On balance, Saudi Aramco appears to have managed this stage very well. The timeframe was as follows. In December 2000 the McKinsey Group recommended that a performance management system should be applied to industrial relations in Saudi Aramco. Saudi Aramco accepted this recommendation and in July 2001 the CEO requested that KPIs be included in the 2004 operating plan. In March 2002 an industrial relations self-assessment workshop selected the BSC as the tool of choice to help Saudi Aramco to do so. In 2004, Saudi Aramco began to introduce the BSC in a sequential process which is still in progress. A major observation, though, is the differences in approaches to the BSC (e.g. number of measures), which emerged even at department or business unit level within the corporation, reflecting the varied nature of this highly diversified corporation.

8.7 Implementation Phase

The implementation stage has several aspects, the most important ones being the subject of this section. Respondents were asked to identify the business reasons that drove Saudi Aramco to successful design and implementation of the BSC. The most

widely cited reason was found to be "To improve business performance", which was given as the most important reason by 96% of respondents. The second most cited reason was "Higher customer orientation culture", followed by "Raising the importance of performance measurement" and "Accommodating business growth." These results are largely consistent with the earlier findings on perspectives, where financial factors also had the highest ranking. The only slight difference was that in this phase, customer orientation culture was placed ahead of businesses growth. It is not entirely clear why this would be the case when it came to the implementation stage. It may be that at this stage, the changeover from an old to a new system based on BSC was perceived to have a potential impact on customers, because any problems in implementation are likely to affect them directly. Therefore, there may have been a recognition that while the company must make a profit, the effect on customers should the system fail ought to be given almost equal importance to financial performance.

Table 8.23 shows the current level of implementation of the BSC. It indicates that 38% were still at the beginning stage, 34% at the halfway stage and 27% fully implemented. Only 3% were at the planning phase. This result shows that Saudi Aramco was actively implementing the BSC in a sequential and incremental manner, and that most projects were in advanced stages. We can conclude that with 97% of the projects having reached the implementation phase, Saudi Aramco had effectively adopted the BSC universally within the corporation.

Table 8.23 Current stage of implementation

I1.2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	3.4	3.4	3.4
	Planning	1	3.4	3.4	6.9
	Beginning of implementation	9	31.0	31.0	37.9
	Fully implemented	8	27.6	27.6	65.5
	Mid-way implementation	10	34.5	34.5	100.0
	Total	29	100.0	100.0	

In terms of the final BSC plan, Saudi Aramco's measurement accurately depicts objectives that the company was attempting to evaluate. This is because the mean score was low, at 2.34 ($p<0.001$). The management information systems were also found to communicate BSC requirements and best practice, with a mean of 2.38 ($p<0.001$).

Table 8.24 shows the respondents' evaluation of the accounting information system. Only 7% of respondents were completely satisfied, while 72% were satisfied but felt that there was still room for improvement, and 10% were not satisfied. The general conclusion is that Saudi Aramco needs to improve on its accounting. Further contact with some of the managers suggested that the problems were in both the timing of information (often late) and the format of the accounts, which was in some cases difficult to interpret.

Table 8.24 Evaluation of the accounting information system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Completely Satisfactory	2	6.9	7.7	7.7
	Satisfactory but room for improvement	21	72.4	80.8	88.5
	Not at all satisfactory	3	10.3	11.5	100.0
	Total	26	89.7	100.0	
Missing	System	3	10.3		
Total		29	100.0		

Below is a list of suggested improvements offered by respondents:

1. Continue to proceed with full implementation of BSC.
2. Keep improving BSC implementation.
3. The SAP system is used throughout the company and has many functionalities that should be explored further in order to fully utilize the system.
4. The financial systems lack full integration and require further enhancement to ensure smooth transfer of data without human intervention.
5. The current process should be seen as a new area for improvement.
6. Without having clear measurable objectives, the BSC contributes little value.

Although we cannot make sweeping conclusions based on individual comments, the above results show that on balance, managers tended to support the concept of BSC. However, they also tended to feel that the BSC was not being fully integrated with the existing SAP Enterprise Resource Planning (ERP) system used by Saudi Aramco. It appears that there may be some compatibility problems with the existing SAP system or a lack of understanding on how to integrate it with BSC. This came out quite strongly even if stated in different ways – the message was that of incompatibility with SAP. ERP systems are known to have flexibility and customisation problems, which could be the primary reason for the frustrations expressed by some of the managers.

The respondents also listed the following points to describe the relationship between BSC and financial accounting:

1. Accounting supplies all the data require for BSC.
2. BSC is internal management and financial accounting is external/government.
3. BSC and financial accounting are closely tied and interdependent.
4. Financial accounting is the source of many actual KPI data.
5. It is very important to measure the real cost and profit and to control cost.
6. None.
7. Promoting accuracy and timely closing.
8. Separate systems; data comes from financial accounting only.
9. Source of KPI measure.
10. Financial accounting helps quantify the derived financial results when applying the BSC.

The respondents' opinions on whether the financial reporting system was integrated with the BSC were almost equally divided, with 58% agreeing and 42% disagreeing. This difference was not significant ($p=0.557$).

In 93% of cases, the approach adopted at the implementation stage was said to be 'top down', while only 7% used the 'bottom up' approach. This overwhelming agreement among managers is inconsistent with the current literature, which encourages a 'bottom up' approach. The BSC is generally associated with a process of

decentralisation and a strategy map that links all the objectives and targets upwards through the organisation. There are questions about whether this philosophy is consistent with the Saudi culture of planning from the top down.

Respondents were neutral on their acceptance of the BSC system: the mean score was 2.86, not significantly lower than 3 (p=0.442), implying that Saudi Aramco had not satisfied all (about half) of its employees as to how the BSC was implemented. Employees also did not feel that the company had a clear plan to roll out the BSC between different levels and departments (mean=2.71; p=0.147). This result is consistent with the comments made on the problems such as lack of integration with SAP. However, it is inconsistent with the performance of the planning phase, where the managers were, on balance, happy with the performance. That is, the performance of the implementation stage was less satisfactory than that at the planning stage. Several factors could explain this. These will be discussed in Chapter Nine.

Table 8.25 shows the time taken to roll out changes to Saudi Aramco's strategy. The typical period was between one and two years, according to 64% of the 28 respondents who answered the question, the next highest response being under 11%.

Table 8.25 Time taken to roll out change

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not an objective of our BSC	3	10.3	10.7	10.7
	Between 3 months and 6 months	1	3.4	3.6	14.3
	Between 6 months and 1 year	3	10.3	10.7	25.0
	Between one and two years	18	62.1	64.3	89.3
	Have not changed strategy	3	10.3	10.7	100.0
	Total	28	96.6	100.0	
Missing	System	1	3.4		
Total		29	100.0		

8.7.1 Conclusions on Implementation Stage

On balance, the implementation stage was not felt to have been well managed, but to have performed substantially less well than the planning phase. Among the main problems were the lack of integration (or incompatibility) with the ERP system, leading to multiple reports, which could have created more work for the managers and made decision-making more difficult. Another major problem was the time taken to make effective change, which averaged more than a year. Such a long transition often creates operational problems for managers and customers, which may explain why the managers felt that customer orientation was almost as important as financial performance at the implementation stage, while at the planning stage customer orientation was considered the least important of the four BSC perspectives.

8.8 Benefits of BSC

Table 8.26 shows the respondents' opinions of the benefits of BSC. The results indicate that on measurement assessment they agreed with the statements, with mean score values ranging from 2.34 to 2.48 ($p<0.001$). On regular reporting, they also agreed with the statements ($p <0.05$) and mean scores ranged from 2.59 to 2.62. On problem solving, respondents tended to agree less. While they agreed that the BSC results help organisations to resolve problems ($p=0.012$), with a mean score of 2.59, they were neutral on "The employees in the organisation are empowered to resolve problems and improve processes", with a mean score of 2.66 ($p=0.08$).

Table 8.26 One sample t tests for benefits of BSC

Benefits of BSC	Mean	SD	P value
Measurement assessment			
B1.1: As a result of the BSC the organisation has realized the benefits of the company's strategies and operational goals.	2.48	.87	.000
B1.2: The results of the BSC help your organisation to assess its performance.	2.34	.77	.000
B1.3: Implementation of the BSC enables the organisation to review its measures frequently and identify the right combination of measures as part of its accountability reports.	2.34	.72	.000
Regular Reporting			
B2.2: Information on the BSC reaches the right people, in the right format, at the right time.	2.62	.78	.014
B2.3: The BSC improves feedback to responsible managers so that adjustments to the strategic plan can be made during the operating period.	2.59	.95	.026
Problem Solving			
B3.1: The employees of the organisation are empowered to resolve problems and improve processes.	2.66	1.04	.086
B3.2: The BSC results help the organisation to solve problems.	2.59	.82	.012

Correlation tests indicate that the items were very strongly correlated ($p<0.001$), as shown in Table 8.27.

Table 8.27 Correlation tests for measurement assessments

Correlations

		B1.1	B1.2	B1.3	B2.2	B2.3	B3.1	B3.2
B1.1	Pearson Correlation	1	.863**	.692**	.757**	.728**	.661**	.686**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	29	29	29	29	29	29	29
B1.2	Pearson Correlation	.863**	1	.744**	.826**	.793**	.643**	.740**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	29	29	29	29	29	29	29
B1.3	Pearson Correlation	.692**	.744**	1	.690**	.636**	.448*	.729**
	Sig. (2-tailed)	.000	.000		.000	.000	.015	.000
	N	29	29	29	29	29	29	29
B2.2	Pearson Correlation	.757**	.826**	.690**	1	.801**	.627**	.751**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	29	29	29	29	29	29	29
B2.3	Pearson Correlation	.728**	.793**	.636**	.801**	1	.682**	.689**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	29	29	29	29	29	29	29
B3.1	Pearson Correlation	.661**	.643**	.448*	.627**	.682**	1	.741**
	Sig. (2-tailed)	.000	.000	.015	.000	.000		.000
	N	29	29	29	29	29	29	29
B3.2	Pearson Correlation	.686**	.740**	.729**	.751**	.689**	.741**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	29	29	29	29	29	29	29

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The benefit concept was measured using several items. It is therefore important to determine the extent to which these items measured the concept accurately, as this reflects the validity of the findings. In order to measure the validity of the benefits construct, factor analysis (principal component analysis with varimax rotation) was used to determine the extent to which the above items accurately measured the benefits concept. The results had a KMO value of 0.871, which is very high indeed. The Bartlett's test result was also significant ($p<0.001$). The model thus explained a very high proportion (75.4%) of the variance (Table 8.28). This is strong evidence that the concept of benefits of BSC was appropriately measured and is valid. Hence the results of the findings can be relied on.

Table 8.28 Variance explained for benefits of BSC

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.279	75.415	75.415	5.279	75.415	75.415
2	.575	8.219	83.635			
3	.399	5.706	89.340			
4	.299	4.265	93.605			
5	.207	2.959	96.565			
6	.128	1.830	98.395			
7	.112	1.605	100.000			

Extraction Method: Principal Component Analysis.

The factor loadings (Table 8.29) were also very high, reconfirming the superiority of the measures.

Table 8.29 Factor loadings for benefits of BSC

Benefits of BSC	**Factor loadings**
Measurement assessment	
B1.1: As a result of the BSC the organisation has realized the benefits of the company's strategies and operational goals.	.889
B1.2: The results of the BSC help your organisation to assess its performance.	.927
B1.3: Implementation of the BSC enables the organisation to review its measures frequently and identify the right combination of measures as part of its accountability reports.	.813
Regular Reporting	
B2.2: Information on the BSC reaches the right people, in the right format, at the right time.	.901
B2.3: The BSC improves feedback to responsible managers so that adjustments to the strategic plan can be made during the operating period.	.879
Problem Solving	
B3.1: The employees in the organisation are empowered to resolve problems and improve processes.	.785
B3.2: The BSC results help the organisation to solve problems.	.877

With regard to action planning, Table 8.30 shows that 71% of respondents agreed that after BSC implementation, Saudi Aramco had carried out a review, taken action on the measures and publicised progress (p=0.036). Similarly, 85% of respondents felt that Saudi Aramco reviewed the whole system to keep it up to date (p<0.001).

Table 8.30 Action planning

Binomial Test

		Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)
B4.1	Group 1	No	8	.29	.50	.036[a]
	Group 2	Yes	20	.71		
	Total		28	1.00		
B4.2	Group 1	No	4	.15	.50	.000[a]
	Group 2	Yes	23	.85		
	Total		27	1.00		

a. Based on Z Approximation.

8.9 Sustainability

Several factors were analysed to determine the extent of the sustainability of the BSC.

8.9.1 Automating the BSC

Table 8.31 shows the level of automation. Although all systems were automated, the level of automation differed among departments. Only 31% of respondents reported that their systems were automated, while 14% were said to be 'mostly automated'. A sizable 55% stated that only parts were automated.

Table 8.31 Level of systems automation

S1.1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fully automated	9	31.0	31.0	31.0
	Mostly automated	4	13.8	13.8	44.8
	Some parts automated	16	55.2	55.2	100.0
	Total	29	100.0	100.0	

The length of time for which the department had used the system software is shown in Table 8.32. Again, this shows some variability, with 3 to 4 years being the most frequent response, by 34% of those who responded to the question.

Table 8.32 Period using software

S1.4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	3	10.3	11.5	11.5
	1-2 years	6	20.7	23.1	34.6
	3-4 years	9	31.0	34.6	69.2
	4-5 years	1	3.4	3.8	73.1
	More than 5 years	7	24.1	26.9	100.0
	Total	26	89.7	100.0	
Missing	System	3	10.3		
Total		29	100.0		

Table 8.33 shows statements that best describe the level at which the software was most often used.

Table 8.33 Level of usage of software

S1.5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Top Management	2	6.9	7.7	7.7
	Operatinal Management only	5	17.2	19.2	26.9
	Primarily operating management but also top management	5	17.2	19.2	46.2
	Primarily top management but also operating management	3	10.3	11.5	57.7
	All levels of management	2	6.9	7.7	65.4
	Other	9	31.0	34.6	100.0
	Total	26	89.7	100.0	
Missing	System	3	10.3		
Total		29	100.0		

8.9.2 Regular Communication and Updating of Measures

The respondents were neutral to the statement "Employees receive strategic information on a regular basis", with a mean score of 2.85 (p=0.49), and to the statement "Measures are revisited and redefined on a regular basis", with a mean score of 2.79 (p=0.184). Table 8.34 shows the frequency with which the measures were reported to be revisited and redefined: approximately 50% quarterly and 50% annually, on average.

Table 8.34 Frequency of revisiting or redefinition of measures

S3.2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fortnightly	1	3.4	4.3	4.3
	Quarterly	11	37.9	47.8	52.2
	Yearly	11	37.9	47.8	100.0
	Total	23	79.3	100.0	
Missing	System	6	20.7		
Total		29	100.0		

8.9.3 Reward and Recognition

Table 8.35 shows the descriptive and one sample t tests results for reward and recognition. The mean scores for these items showed mixed results, with two items being significant, while the other two were not significantly different from neutral, as shown in Table 8-30. Such differences could be due to how the concept was measured using the four items (poor conceptualisation of reward and recognition). Factor analysis was therefore used to determine how well the four statements measured the concept of reward and recognition. Assumptions for both the KMO value (0.624) and the Bartlett test (p<0.001) were satisfied and the total variance explained (Table 8.36) was 59%, which is considered only 'adequate.' Three factor loadings (Table 8.37) were also quite high, but one factor, "The focus is on individuals' contributions in relation to specific tasks in the organisation," had a lower loading than the others. This indicates that although the construct was measured adequately, it may not have been fully measured. This in turn means that we should interpret the findings on reward and recognition with caution.

Table 8.35 Descriptive scores for reward and recognition

Reward and Recognition	Mean	SD	P value
The focus is on individuals' contributions in relation to specific tasks in the organisation.	2.79	.90	.227
Linkages to reward systems are required for BSC to create cultural change in improved economic performance.	2.29	.98	.001
The linking of compensation and measurement of employee awareness to scorecard results is significant in sustaining the BSC system.	2.55	1.06	.030
The organisation's incentive systems are aligned with BSC measures.	3.10	1.01	.586

Table 8.36 Total variance explained by the reward and recognition factor

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.361	59.027	59.027	2.361	59.027	59.027
2	.998	24.947	83.973			
3	.448	11.199	95.173			
4	.193	4.827	100.000			

Extraction Method: Principal Component Analysis.

Table 8.37 Factor loadings for the reward and recognition factor

Reward and Recognition	Factor loadings
The focus is on individuals' contributions in relation to specific tasks in the organisation.	.587
Linkages to reward systems are required for BSC to create cultural change in improved economic performance.	.850
The linking of compensation and measurement of employee awareness to scorecard results is significant in sustaining the BSC system.	.845
The organisation's incentive systems are aligned with BSC measures.	.762

8.9.4 Corporate Alignment

The score for the item "The measures used in the scorecard system motivate employees to work is in congruence with the organisation's objectives" was 2.64 (p=0.039), indicating that the respondents largely agreed with this statement.

8.9.5 Self-assessment through Excellence Models

Table 8.38 shows that respondents overwhelmingly agreed that supply chain management; internal processes, asset utilisation and resource capacity management were being used by Saudi Aramco in order to achieve operational excellence.

Table 8.38 Improvement through operational excellence

Operation excellence is achieved through	Mean	SD	P value
Supply chain management	2.11	.70	.000
Internal processes	1.93	.70	.000
Asset utilisation	2.17	.60	.000
Resource capacity management	2.28	.70	.000

8.10 Learning and Innovation

Table 8.39 shows the analysis of the respondents' opinions on learning and innovation. They were found to be neutral to "A strategic feedback system is in place" (p=0.259) and to "Employees are encouraged to voice their opinions, criticisms and give feedback on organisational functioning and performance" (=0.067). They agreed with the remaining items in this section (p<0.01).

Table 8.39 Descriptive and one sample t tests for learning and innovation

Learning and Innovation	Mean	SD	P value
L1: A strategic feedback system is in place	2.82	.82	.259
L2: The performance appraisal system encourages learning and innovation	2.34	.72	.000
L3: The learning process at operating level affects performance measurement	2.38	.68	.000
L4: There is a learning environment which encourages people to innovate and share best practice and knowledge	2.31	.81	.000
L5: Employees are encouraged to voice their opinions, criticisms and give feedback on organisational functioning and performance	2.66	.97	.067
L6: The organisation has a culture of teamwork and problem solving	2.44	.89	.003
L7: The organisation encourages suggestions to enhance creativity and innovation	2.25	.80	.000

Table 8.40 Variance explained by the learning and innovation concept

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.560	65.146	65.146	4.560	65.146	65.146
2	.760	10.852	75.998			
3	.670	9.567	85.565			
4	.361	5.155	90.720			
5	.301	4.302	95.022			
6	.262	3.737	98.759			
7	.087	1.241	100.000			

Extraction Method: Principal Component Analysis.

Factor analysis produced a single factor solution, with a total variance explained of 65% (Table 8.40). Assumptions for both the KMO value (0.733) and Bartlett test ($p<0.001$) were satisfied. The variance explained by the single factor was very high for such a small sample size, indicating that the concept was accurately captured. The superiority of the measure is further confirmed by the high and significant factor loadings (Table 8.41).

Table 8.41 Factor loadings for Learning and Innovation

Learning and Innovation	P value
L1: A strategic feedback system is in place	.713
L2: The performance appraisal system encourages learning and innovation	.872
L3: The learning process at operating level affects performance measurement	.781
L4: There is a learning environment which encourages people to innovate and share best practice and knowledge	.844
L5: Employees are encouraged to voice their opinions, criticisms and give feedback on organisational functioning and performance	.723
L6: The organisation has a culture of teamwork and problem solving	.888
L7: The organisation encourages suggestions to enhance creativity and innovation	.811

8.11 Obstacles to the Implementation of BSC

Table 8.42 shows the frequency with which each of the obstacles was cited as being a barrier to BSC implementation. Respondents were asked to tick as many factors as they wished and these were summarised. Hence in the frequency column is the number of times a factor was cited. The barrier most widely cited (by all 29 managers) was "Resistance to change from old techniques", followed by "Employees do not understand company vision", which was cited by 15 managers. All of the factors were cited as having an impact by at least 9 managers, with the exception of "Too few measures", which was cited by only one manager. On balance, we can conclude that there were some significant barriers to the implementation of the BSC.

Table 8.42 Obstacles to BSC implementation

Learning and Innovation	**Frequency**
The vision – Employees do not understand company vision	15
The management – The organisation is solely focused on short-term performance	12
The complex nature of the BSC and the requirements for its operationalisation	11
The people – The developing and maintaining of BSC can create a higher workload, with competing reporting systems, etc	12
Too many measures	9
Too few measures	1
Resistance to change from old techniques	29

8.12 Reliability Analysis & Development of Summated Rating Scales

One objective of this study is to determine whether managers have the same understanding of change. While this question was partially answered using one sample t tests and z-proportion tests, the results can be further improved by testing for potential differences due to demographic variables such as the rank of the manager (senior, junior, professional, etc) and his department.

However, before testing the above, the concepts measured using factor analysis had to be tested for their reliability using the reliability analysis technique. Reliability is basically the ability of a measure to produce consistent results when the same entities are measured under the same conditions (Hair et al, 2005). For the type of measures used in this study (several items measuring one concept), the Cronbach's alpha coefficient is the most common measure of the reliability of the scale. The general guideline is a value of over 0.7, although in some cases a value of 0.6 is acceptable (Field, 2005, p668).

8.12.1 Management commitment

Table 8.43 shows that the Cronbach's alpha coefficient for management commitment was 0.87, which is an excellent result, given that this is based on only three items. Table 8.44 shows what the value would be if an item were deleted. For management commitment, the scale would make only marginal and insignificant improvements if the item "Top management is able to resolve conflicts in a way that maximises the benefit to the company" were deleted. When the improvement is so marginal, the initial items must be retained in full, as recommended by Hair et al (2005). The scale can therefore be considered to be highly reliable.

Table 8.43 Cronbach's alpha for management commitment

Reliability Statistics

Cronbach's Alpha	N of Items
.871	3

Table 8.44 Cronbach's alpha for management commitment if an item was deleted

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
M1	4.59	2.751	.770	.806
M2	4.34	2.377	.810	.763
M3	4.31	2.722	.686	.878

Given the above, a summated rating scale was developed for the concept of management comment. The scores from the three items were averaged (mean score) and a new single variable named "Management Commitment" was developed. The results of the descriptive scores and the one sample t test for the new summated scale are shown in Tables 8.45 and 8.46.

Table 8.45 Descriptive mean score for new management commitment variable

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Management Commitment	29	2.21	.78	.146

Table 8.46 One sample t test for the new management commitment variable

One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Management Commitment	-5.449	28	.000	-.79	-1.0913	-.4949

As shown in Tables 8.45 and 8.46, the mean score was 2.21, which was significantly lower than the neutral value of 3. The conclusion is that the managers felt that top management was committed to the BSC. This result is consistent with the individual item based one sample t test presented earlier. Consequently, we can use the summated scale for further analyses, instead of individual items.

The above analysis was repeated for the rest of the concepts that were measured using factor analysis. The results summarised in Table 8.47, show clearly that the summated scales are highly reliable, as Cronbach's alpha varies from 0.77 to 0.94. The small sample size further demonstrates the superiority and high quality of the input data. The results also show that in all variables in Table 8.47, the one sample t test was significant, indicating that on balance, the managers agreed with the way Saudi Aramco was managing these aspects.

Table 8.47 Reliability analysis results for major concepts

Variable	Cronbach's alpha	Mean score	P value for one sample t test	Rank
Management Commitment	0.87	2.21	.000	2
Stimulation of Culture	0.82	2.43	.001	3
Set Objectives	0.77	2.04	.000	1
Benefits of BSC	0.94	2.52	.001	5
Reward & Recognition	0.77	2.70	.042	6
Learning & Innovation	0.91	2.46	.000	4

8.13 Summary of Factors and Ranking

Table 8.48 summarises the ranked factors. The mean scores range from 1.72 to 3.00, where the lower the number the more important the factor. Hence the most important factor is 'KPIs' and the least important is 'Final measure'.

Table 8.48 Ranking of BSC factors

Factor	Phase	Mean	T test	Rank
KPIs	Development	1.72	0.000	1
Perspectives	Development	1.76	0.000	2
Training	Development	2	0.000	3
Set objectives	Development	2.04	0.000	4
Self assessment	Sustainability	2.12	0.000	5
BSC team	Planning	2.21	0.000	6
Management (top) commitment	-	2.21	0.000	7
Final BSC Plan	Implementation	2.34	0.000	8
Cause & effect	Development	2.36	0.000	9
Design of information systems	Implementation	2.38	0.000	10
Integration	Development	2.38	0.000	11
Stimulation of culture	Planning	2.43	0.001	12
Communicating BSC	Planning	2.45	0.001	13
Shareholder	Planning	2.45	0.001	14
Learning & innovation	Learning	2.46	0.001	15
Benefits of BSC	Benefits	2.52	0.001	16
Corporate alignment	Sustainability	2.64	0.001	17
Reward and recognition	Sustainability	2.70	0.05	18
Rolling out implementation plan	Implementation	2.71	0.15	19
Updating measure	Sustainability	2.79	0.19	20
Regular communication	Sustainability	2.85	0.41	21
Personal BSC	Implementation	2.86	0.44	22
Final measure	Development	3.00	1.00	23

8.14 Impact of Demographic Variables

The impact of demographic variables was tested using ANOVA. Each of the variables was treated as the dependent variable (metric) and the factor variables (categorical) were (i) role of the manager in Saudi Aramco and (ii) Saudi Aramco's main activity. Results are presented in Tables 8.49 and 8.50 respectively.

Table 8.49 ANOVA comparative results: Factor variable is Role/Position

Multiple Comparisons

Scheffe

Dependent Variable	(I) Main activity	(J) Main activity	Mean Difference (I-J)	Sig.
Management_ Commitment	Transaction Support	Decision Support	.21958	.828
		System and Controllership	.39815	.670
	Decision Support	Transaction Support	-.21958	.828
		System and Controllership	.17857	.938
	System and Controllership	Transaction Support	-.39815	.670
		Decision Support	-.17857	.938
Stimulation_Culture	Transaction Support	Decision Support	.06217	.985
		System and Controllership	.32407	.772
	Decision Support	Transaction Support	-.06217	.985
		System and Controllership	.26190	.876
	System and Controllership	Transaction Support	-.32407	.772
		Decision Support	-.26190	.876
Set_Objectives	Transaction Support	Decision Support	.30159	.598
		System and Controllership	.56944	.313
	Decision Support	Transaction Support	-.30159	.598
		System and Controllership	.26786	.813
	System and Controllership	Transaction Support	-.56944	.313
		Decision Support	-.26786	.813
Benefits	Transaction Support	Decision Support	.17574	.874
		System and Controllership	.02778	.998
	Decision Support	Transaction Support	-.17574	.874
		System and Controllership	-.14796	.953
	System and Controllership	Transaction Support	-.02778	.998
		Decision Support	.14796	.953
Rewards_Recognition	Transaction Support	Decision Support	.31746	.665
		System and Controllership	.24306	.855
	Decision Support	Transaction Support	-.31746	.665
		System and Controllership	-.07440	.989
	System and Controllership	Transaction Support	-.24306	.855
		Decision Support	.07440	.989
Learning_Innovation	Transaction Support	Decision Support	.26058	.678
		System and Controllership	.18915	.874
	Decision Support	Transaction Support	-.26058	.678
		System and Controllership	-.07143	.985
	System and Controllership	Transaction Support	-.18915	.874
		Decision Support	.07143	.985

Table 8.50 ANOVA comparative results: Factor variable is Department

Multiple Comparisons

Scheffe

Dependent Variable	(I) Main activity	(J) Main activity	Mean Difference (I-J)	Sig.
Management_ Commitment	Transaction Support	Decision Support	.21958	.828
		System and Controllership	.39815	.670
	Decision Support	Transaction Support	-.21958	.828
		System and Controllership	.17857	.938
	System and Controllership	Transaction Support	-.39815	.670
		Decision Support	-.17857	.938
Stimulation_Culture	Transaction Support	Decision Support	.06217	.985
		System and Controllership	.32407	.772
	Decision Support	Transaction Support	-.06217	.985
		System and Controllership	.26190	.876
	System and Controllership	Transaction Support	-.32407	.772
		Decision Support	-.26190	.876
Set_Objectives	Transaction Support	Decision Support	.30159	.598
		System and Controllership	.56944	.313
	Decision Support	Transaction Support	-.30159	.598
		System and Controllership	.26786	.813
	System and Controllership	Transaction Support	-.56944	.313
		Decision Support	-.26786	.813
Benefits	Transaction Support	Decision Support	.17574	.874
		System and Controllership	.02778	.998
	Decision Support	Transaction Support	-.17574	.874
		System and Controllership	-.14796	.953
	System and Controllership	Transaction Support	-.02778	.998
		Decision Support	.14796	.953
Rewards_Recognition	Transaction Support	Decision Support	.31746	.665
		System and Controllership	.24306	.855
	Decision Support	Transaction Support	-.31746	.665
		System and Controllership	-.07440	.989
	System and Controllership	Transaction Support	-.24306	.855
		Decision Support	.07440	.989
Learning_Innovation	Transaction Support	Decision Support	.26058	.678
		System and Controllership	.18915	.874
	Decision Support	Transaction Support	-.26058	.678
		System and Controllership	-.07143	.985
	System and Controllership	Transaction Support	-.18915	.874
		Decision Support	.07143	.985

The results in Tables 8.49 and 8.50 clearly show that demographic variables had no impact on the findings. We can therefore further confirm that all levels of management had the same understanding of issues relating to the BSC.

8.15 Summary

This chapter has presented the results of the quantitative data analysis. The respondents' profile was presented, showing that the sample was reasonably well represented overall. The motives and requirements for BSC were analysed. The critical factor of management commitment and other critical and key success factors in the various stages/phases – planning, development and implementation – were analysed. The benefits of the BSC were also explored. Its sustainability and the learning and innovation aspects of the system were investigated. The major obstacles to implementation were then examined. The factor analysis and reliability results were very high, indicating that the constructs and concepts were appropriately measured. Summated rating scales were developed to assess the relevance of the critical success factors. The key BSC success factors were ranked by mean scores. The impact of demographic variables was tested using ANOVA. These investigations were performed using robust statistical techniques such as the z-proportion test, factor analysis, t tests, correlation tests, reliability tests and ANOVA. The wide range of results presented in this chapter is discussed in Chapter Ten, in conjunction with those of the qualitative analysis, which are given in Chapter Nine.

9. DISCUSSION

9.1 Introduction

This chapter presents a discussion of the key qualitative and quantitative findings (Chapters Seven and Eight) and other findings from the critical analysis of the secondary documents provided by Saudi Aramco with regard to its adoption and implementation of the balanced scorecard (BSC). The discussion is guided by the six research objectives that are set out in Chapter one. Bsed on the findings of this study, the chapter also presents a suggested model that Saudi Aramco can adopt in its modification/updating of the BSC.

9.2 Saudi Aramco's Motivation for Introducing the BSC

A major finding on the motivation for the introduction of the BSC, from the quantitative analysis in Chapter 8 (Section 8.3) is that while all the respondents were clear about the importance of management control systems (MCSs), the managers tended to think that there were other systems besides the BSC. More importantly, the respondents were equally split on the issue that the BSC was considered together with other systems such as Economic Value Added (EVA), leaving the managers unconvinced that the BSC was the only design for an MCS. In addition, the managers did not think that improving profitability and the replacement of systems that were not meeting the objectives of managerial control were among the main reasons for the introduction of the BSC at Saudi Aramco. These findings raise important questions as to whether the managers were adequately involved in the selection of the BSC as the most appropriate MCS for Saudi Aramco. It appears from Saudi Aramco's internal documents that McKinsey initiated the ideas that led to the BSC and that the selection of the BSC was consequently already 'biased' against other potential systems. As will be discussed later in this chapter, the implication of this may have been one of the

primary reasons for the integration problems that Saudi Aramco has faced in using the BSC, particularly with regard to the failure to integrate the accounting functions of the SAP ERP system and the BSC. An inevitable consequence would be the underutilisation of the BSC and possibly information overload for managers, because they would have to use different systems for different performance measures, thereby defeating the primary purpose of the BSC.

The primary motivation for the introduction of the BSC was to improve Saudi Aramco's overall performance in order to satisfy the objectives set by the shareholder (the Saudi government), which drafted thirteen criteria (Chapter Three section 3.2.6.2) that Saudi Aramco needed to meet in order to achieve the overarching objective: maximisation of the overall benefit. Of these thirteen, criterion 1 – Maximise Government Revenue – states, "Maximise the net present value of the cash flows paid by the Company to the Kingdom over the life of the Agreement. The cash flows mainly consist of upfront cash payments, royalties and income."

Qualitative research findings show that the managers appeared to recognise this, because the primary function of the BSC is to assist the organisation in improving its performance (Kaplan and Norton, 1992). However, an interesting finding of the qualitative interviews is that one top manager, the Vice President responsible for Corporate Planning, pointed out that "*Stakeholders require Finance to provide the financial expertise and business acumen to ensure that business decisions across the company maximize shareholder value*" (Chapter Seven Section 7.5.1). This criterion is not set out in the thirteen criteria draft. If we carefully examine this statement by the VP it can be seen to have many possible interpretations. Among the more important ones is that this may be perceived as implying that Saudi Aramco could use techniques such as financial engineering (e.g. derivatives) to maximise shareholder value. It is not entirely clear whether this additional criterion of shareholder maximisation using financial expertise and business acumen was a management initiative or an implicit directive from the shareholder. It is likely that the former is the reality and that management wanted this freedom to use financial engineering to increase profits. This notion of financial engineering is particularly important for

Saudi Aramco because it is a global firm whose major competitors are companies such as Shell Corporation, British Petroleum (BP) and Exxon Mobil.

Indeed, the VP Corporate Planning returned on several occasions to shareholder value (see Chapter Seven, Section 7.5.1, for example on top management commitment), further arguing, "*We are a state-owned firm; we operate on a commercial basis, just like any multinational oil company. In fact, our corporate mission is to engage in all activities related to the hydrocarbon industry, on a commercial basis and for the purpose of profit.*" What he was implying was that Saudi Aramco should operate effectively as a publicly listed company like its competitors. This has serious implications, given that the likes of Shell and BP operate in a free market system and that their shares are listed on various stock markets. Therefore, issues of governance are driven by the markets. Saudi Aramco, on the other hand, is a state-controlled company which does not even publish financial statements in the way that its main competitors do.

Saudi Aramco also has 'social' objectives. An internal document that lists the KPIs for the BSC states, "*Saudi Aramco will strive to significantly increase its contribution to the Kingdom's Revenues and will consistently promote the development of the local economy.*" This is re-emphasised in statements on the BSC perspectives. For the Financial Perspective, a key objective is "*Support local economy: Saudi Aramco will support local Saudi contractors and suppliers by preferentially buying products and services from them.*" For the Internal Perspective, a key objective is "*Support Saudi contractors: Saudi Aramco will support Saudi contractors and suppliers by preferentially buying products and services from them.*" The company further points out that it will comply with the nationally imposed Saudization programmes (e.g. preferential treatment of local suppliers and Saudis for employment/promotion). These social objectives imply that it would be impossible for Saudi Aramco to achieve the profit maximisation objective for which the VP Corporate Planning argued. It may be that local contractors are not the most cost effective suppliers. This indicates serious weaknesses in the effectiveness and appropriateness of Saudi Aramco's BSC, because one of the key aspects of the BSC is to have quantifiable and measurable outcomes. If Saudi Aramco is to operate as a commercial organization

that maximises shareholder value, some modifications have to be made to the BSC in order to take account of the social objectives. This research did not find any evidence of such modifications.

The analysis also revealed that the top managers clearly understood that the BSC was not just a strategy map, but part of a loop feeding back to the strategy, as supported by a top financial manager (Chapter Seven, Section 7.5.1). We can therefore argue that Saudi Aramco's top managers understood the strategic role of the BSC, and hence were likely to use it in the appropriate manner. Equally, the quantitative analysis showed that all managers clearly understood the objectives of the BSC, but did not feel that the particular objectives of profitability and replacement of a less informative system were the primary objectives in the case of Saudi Aramco. The differences between top managers and their subordinates clearly did not arise from a failure by the latter to understand the objectives of the BSC, but from genuine differences as to what they would have considered the primary objectives of the BSC to be. The implication is that any changes that may need to be made in future should ideally involve the managers at an earlier stage than was the case for the introduction of the BSC.

9.3 Management Commitment to BSC

The literature review identified the commitment of top managers and executives to the BSC as crucial. The quantitative analysis findings of this study showed that the middle and junior managers who were surveyed felt strongly that Saudi Aramco's top management was very much committed to the BSC. Further evidence for this perception included the creation by top management of the BSC committee, the fact that the top management made the crucial decisions and the fact that as many as 17% of managers interviewed felt that the CEO as an individual made the final decision. While the perception that the CEO made the decision alone would tend to imply autocratic management, it is nonetheless evidence that top management was really involved. These findings on commitment are consistent with other research (e.g. Bloomfield, 2002; Neilsen and Sorenson, 2004; Well and Weiner, 2005;

Papalexandris et al, 2005). We can rely on the findings of this study because the factor analysis used to test the validity of the construct showed that it explained 80% of the variance (Chapter Eight, Section 8.4.1), implying that the concept was correctly measured by the items used in the questionnaire. The quantitative findings were also supported by several senior executives who were interviewed. For example, the General Manager of Corporate Planning commented, *"Our CEO and senior management have provided direction to guide us in developing a strategy to help meet the challenges the Kingdom faces"* (Chapter Seven, Section 7.5.2).

An interesting point, however, is that while middle managers felt that top managers were committed, the top executive (the Finance Director) who is likely to have been one of the first individuals to bring the idea of the BSC to the CEO and other top executives, had to work quite hard to convince some of the top managers of its merits. This may be the reason why a consultancy, the McKinsey Group, was hired to present the business case for the BSC. The implication is that it was important to present the business case for the BSC to the CEO, to other executives and to lower level managers as well, in order to gain their support.

Indeed, according to Saudi Aramco's internal documents, top managers asked themselves the following questions: What is the goal for the current or new strategy? What would success look like? What measures should be used to gauge this success? Could there be any unintended consequences of focusing on certain KPIs? These were critical issues that needed to be addressed as part of the business case.

9.4 Planning Phase

Quantitative analysis showed that respondents were convinced that the planning of the BSC was done appropriately on the whole. The importance of the planning phase is emphasised by Valris et al. (2005) and Papaalexandris et al (2005). While the idea of the BSC was adopted at the company level, the introduction was in phases, beginning with the corporate department. This probably explains why, as discussed below, the

VP Corporate and the Senior General Finance Manager appeared to be the most knowledgeable and arguably the most enthusiastic of the top management executives. The interviews established an overwhelming agreement among the top managers that the BSC went through a planning phase at Saudi Aramco. There was widespread evidence to support this claim. For example, the Finance Department set up three teams to work on evaluating the internal conditions of the business. One team evaluated the customer perspective, while the second had its members attached to other worldwide organisations that had successfully implemented the BSC. Having learnt how these organisations had implemented their BSC (problems, costs, management of change, vendor selection, etc), they then documented their findings. The third team worked with the German-based Hackett Group, which specialises in benchmarking consulting. It is quite clear from the interviews that Saudi Aramco invested some significant human and financial resources in the planning stage.

At this stage, the planning phase adopted by Saudi Aramco followed a top-down approach, as reflected in the comments by an expatriate senior manager (Chapter Seven Section 7.5.3), that the company had *"followed the top-down approach to communicating the BSC, and feedback was required from each department. ... The strategic objectives are determined by top management ...concise statements articulating specific components of what the strategy must achieve and what is critical to its success. ... Saudi Aramco provides employees with detailed guidance on the BSC project in PowerPoint, in English."* This appears at least partially to contradict the recommended procedures for developing the BSC. While top management had the responsibility for setting out the strategy, a top-down approach in which the top management 'articulated specific components' may have created some resistance to change, because lower ranking managers felt less involved. This is probably why the senior manager who raised this concern was an expatriate; the recommended approach to development is that it should be more involved with all those concerned even at the planning phase, particularly in view of the fact that in the case of Saudi Aramco, teams had already been established to start the process. It was important for these 'specific components' to be perceived as coming from the team rather than being top management prescriptions.

The planning phase involved preparing the employees for the changes that would happen. This is consistent with Wells and Weiner (2005) and De Waal (2002). The change requirements for such an influential project are often associated with the need to change the company's culture. An interesting finding of this study is the conflict of views on whether the BSC is a top-down or bottom-up approach. This study found that the managers felt that it was the former, despite the fact that Saudi Aramco appeared to recognise the need for a bottom-up approach, as reflected by an internal document relating to the establishment of KPIs, which states, for example, "*Therefore, the KPIs for the individual departments need to be developed before any higher level KPIs can be developed.*" The most likely explanation for this is that the Saudi business culture has often worked using the top-down approach, and hence while recommendations from the literature may have prompted Saudi Aramco to set a bottom-up procedure, putting this into practice may have proved to be a serious challenge that Saudi Aramco then failed to address fully. However, failure to implement the bottom-up procedures may not necessarily lead to poor performance, because the content may make the top-down approach workable. What is important in the top-down approach is to have managers who have excellent people management skills, so that they consult their subordinates, then formulate procedures or policy from above.

A possible explanation for this is that Saudi Aramco's document on setting up the KPIs is quite unclear as to which approach was really applied in practice, as reflected in this statement: "The pilot [KPIs] are being developed with a top-level view and KPIs for individual departments will be developed at a later date. The first step in the process is to take a high level view to establish the objectives that need to be developed in order to align with the overall strategies. The KPIs at a higher level view need to be a consolidation of the KPIs for the individual departments." This statement appears to contradict the bottom-up approach referred to above. The ambiguity of this position may have led managers to adopt a top-down approach in practice. In addition, where a consulting firm has helped to make the business case, it will often recommend the KPIs to be measured. Even if it merely presents a general list of KPIs to serve as guidelines and from which managers can select or develop their own, the managers may view the list as prescriptive and hence adopt a top-down approach.

The above argument can also be extended to the way the company sought the involvement of all business departments in the development of KPIs. Saudi Aramco's internal document reads, "The solution will be through workshops that bring together board members and senior managers from different business units can help foster agreement on KPIs. The next step is to hold departmental workshops, where managers discuss with staffers the KPIs their departments will be measured by, and why. Managers should consider linking employee rewards and sanctions to performance measured against KPIs. This reinforces the importance of the KPIs." This statement can be argued to be following a top-down approach, particularly when the rationale for introducing KPIs is given as: *"Measuring business performance often means changing management behaviour, which is not always popular. People sometimes react less than positively when they realise that they are being measured."* Again, while this is a genuine recognition of the problems that can be experienced when introducing the BSC, managers may have felt that they needed to take a top-down approach to ensure compliance. To conclude, the issue of the choice of a bottom-up or top-down approach to KPIs at Saudi Aramco is inextricably linked to Saudi business culture.

Another possible cause for the apparent failure to take a bottom-up approach is that the need to change top management thinking was initially suggested by the consultants, who recommended that a performance management system should be applied in industrial relations in Saudi Aramco: *"Top management... should relinquish its current operational focus"* (Chapter Seven Section 7.3.1).

From the qualitative analysis, it was clear that cascading (the process of developing aligned goals throughout an organisation, connecting strategy to operations to tactics, allowing each employee to demonstrate a contribution to overall organisational objectives) was an important factor, which is consistent with the findings by Niven (2002); Valiris et al. (2005) and Mouristen et al. (2005); There was evidence that Saudi Aramco attempted to use cascading as a decentralisation mechanism. Evidence is provided by the Financial General Manager (Chapter Seven, Section 7.5.5): *"Once the scorecard is in place at the top strategy-setting level of the organisation, each*

subordinate level of the organisation that sets strategy must go through the same process as its superior level, creating its own balanced scorecard. However, the subordinate unit must ensure that its balanced scorecard is in alignment with the superior unit's scorecard." Therefore, in theory, it can be argued that Saudi Aramco set out to implement the BSC in a manner that allowed the subordinates to contribute to the overall development of the BSC. However, the fact that some managers did not feel that this was a bottom-up approach may reflect the actual practice by their superiors. Did they genuinely involve the subordinates or did they simply prescribe the goals to them? Were the subordinates themselves keen enough to take the opportunity or were they preoccupied with their own problems?

Another point that appears to support the perception that a bottom-up approach may have been generated in practice but not in theory is found in the Financial General Manager's clear statement of how the prioritisation would proceed (Chapter Seven, Section 7.5.4). At the top would be the KPIs, but these would not state how success was to be achieved; this was to be left to the subordinates, who could improve the KPIs and also recommend changes. The fact that these KPIs were prioritised using red, yellow and green lights on an electronic dashboard, with managers taking immediate intervention action when a red light appeared, shows that much was left to the managers, because they could follow the progress of a KPI from green to yellow and then red, giving them enough warning to intervene at the yellow stage. Again in principle, this prioritisation appears to have been a two-way process, particularly given the fact that the subordinates were effectively the formulators of the 'how' part of the KPIs.

Consistent with the findings of Franco and Bourne (2003) and Wells and Weiner (2005), Saudi Aramco's documents on the BSC also reflect the importance of KPIs and the need for integration. It was also quite clear that the KPIs were classified into three basic categories: financials (e.g. return on assets), non-financials (such as safety and innovation) and business-line specifics (e.g. customer focus). However, what is not very clear (and which is a major inherent weakness of the BSC) is how Saudi Aramco measures KPIs such as innovation, the environment and customer focus.

Given the above, we can argue that practice appears to differ from policy and theory at Saudi Aramco. That is, the development of the BSC appears to be inconsistent with what the initiators of the BSC (Kaplan and Norton, 1992; 2001) suggest: the setting up of strategy direction by top managers and the development of the 'what' and 'how' by the subordinates. There therefore appears to be a policy-practice a gap, which Saudi Aramco needs to explore further.

Despite the above, on balance, Saudi Aramco's management of the planning phase can be argued to have been done largely in line with guidelines established by Kaplan and Norton (2001), so this stage was unlikely to be a significant barrier to the successful introduction of the BSC.

9.5 Development Phase

The development phase established the following ranking of the BSC perspectives (in declining order of importance):

1. Learning and growth perspective
2. Financial perspectives
3. Internal business perspective
4. Customer perspective.

As argued in Chapter Eight, in terms of the BSC as a strategy map, we would expect the learning and growth perspective to be at the top, as was the case, because arguably the most common cause for failure in change programmes like this is the way the people are managed. Therefore, we can praise Saudi Aramco for having recognised this and dealt with it appropriately. However, we would not expect the customer perspective to be at the bottom of the list, because oil is a commodity, making it easy for customers to switch suppliers. No matter how effective the internal system is, for example, if customer service is poor then business is likely to decline significantly. A possible explanation for this ranking is that Saudi Aramco operates a monopoly in the exploitation of oil in Saudi Arabia. Consequently, the company may inadvertently

have placed other perspectives ahead of concern for its customers because of its monopoly power.

An important finding of this investigation is the considerable differences among business units in the number of measures that they used in the BSC, ranging from fewer than 10 for some business units to over 40 for others. The importance of measures is emphasised by Niven (2002) and De Waal (2002). One likely explanation for this variation is that Saudi Aramco is a highly diversified corporation, with activities ranging from oil exploration to the generation of electric power for domestic consumption. Some of the variation can hardly be treated as being directly related to diversification, however. It may instead be explained by the fact that Saudi Aramco uses different benchmarks for rates of discount of capital for different sectors of its business, ranging from 7.5% for downstream activities to 9.5% for upstream ones (Chapter Eight, Section 8.6.5). This is likely to have a significant effect on factors such as the need for the BSC and how managers are to be rewarded.

The qualitative research revealed that the dominant aspect of the BSC at Saudi Aramco was the setting of KPIs. The fact that the President and Chief Executive (CEO) specifically mentioned this phase is a reflection of how involved the top management was. The CEO (Chapter Seven, Section 7.5.4) said, "*Saudi Aramco is not the same company it was 20 years ago – or even five years ago. We have gone from a focus on upstream crude oil activities to being a fully integrated, international hydrocarbon enterprise that includes refining, distribution, natural gas operations, international shipping, and a worldwide network of affiliates and joint ventures. This increased complexity calls for KPIs.*" This is evidence that Saudi Aramco had become more commercially oriented, and had considered the BSC to be at the centre of how the company measures its performance. There is also strong evidence that all the managers showed an understanding of the development phase. This is particularly demonstrated by both the General Manager of Corporate Planning, the VP of Corporate Planning and the Senior Vice President, Finance. On balance, there appeared to be equal levels of understanding of the BSC by the two expatriate managers and the six Saudi managers who were interviewed. Evidence of non-Saudi

managers' understanding is detailed in Chapter Seven (section 7.5.4), in which the manager gives very accurate details of the BSC perspectives.

9.6 Implementation Phase

The research has found that Saudi Aramco implemented the BSC in a sequential manner (Chapter Eight, Table 8.23). Empirical evidence presented in the literature often identifies the implementation stage as a crucial one, where things are most likely to go wrong. Nevertheless, given the fact the planning phase was considered on balance to be successful, we would expect the implementation phase to be less problematic. However, only 7% of the managers consulted were completely satisfied, while 72% were fairly satisfied, but felt that there was room for improvement, and 10% were totally dissatisfied (Chapter Eight, Section 8.7). While the project can be considered a success in that it was completed, there are two important issues that are central to this feeling of dissatisfaction.

An important achievement made by Saudi Aramco is the way the corporation managed to change its culture, thereby enabling the implementation of the BSC. This was despite the concerns raised earlier concerning the 'bottom-up versus top-down' debate. Although there were elements of a top-down approach, we can argue that on balance culture change was well managed because the implementation stage did not encounter resistance. However, it is debatable whether this lack of resistance was beneficial or counterproductive, given that BSC implementation was allowed to proceed despite the concerns of employees regarding issues such as quantity of input data required and serious problems related to integration.

One of the key problems identified in this study concerned BSC integration. In principle, Saudi Aramco developed its KPIs using the cascading approach, which means that these KPIs should have been accepted wholeheartedly by the managers, because they were involved in drawing them up. Indeed, Saudi Aramco's relevant internal document has the following key subheadings: (1) "Seek involvement from all business departments when developing KPIs; (2) KPIs rely on integrated data from all

departments; (3) Feedback process – There needs to be a two-way feedback process between the front line of the business and the decision-making/management area. It is important to know what is happening and why, and if something can be improved, people need to know what to do about it."

However, as noted in Chapter 8, the integration of the BSC failed to work well and managers did not feel that they were getting the best out of the BSC. Given the importance of this issue, the researcher contacted two managers to seek clarification of the true nature of the problem causing this lack satisfaction with the BSC. The responses were startling and showed that there were still some serious underlying problems with the BSC at Saudi Aramco. Below is a summary of the response from a manager in the Financial Department.

First, he referred to "*a lot of data gathering and data analysis that is done outside the system's environment and manually*," including the monthly MIS data from JVs, data in XL spreadsheets, from accounting departments, from the joint ventures coordination group and from other departments. All these needed to be standardised, filtered and synchronized. The manager added, "*We cannot really assess the system as a whole, because we have used only a very small piece of it. Where we have struggled with it is in the use of SAP. To us, sometimes it is not very user-friendly.*" When pressed to give the BSC a rating, the manager replied. "*A two, because at the end of the day, there are some people that can get the required information out of the system – just not us.*" This effectively meant that the Finance Department hardly used the BSC, but probably still relied on output provided by SAP. The problem was compounded by the fact that the employees did not feel empowered to resolve problems and improve processes (Chapter Eight, Section 8.8; Table 8.21). This is a serious weakness of Saudi Aramco.

The above problem persisted despite its acknowledgement in Saudi Aramco's internal document: "There are, of course, many problems that department management has experienced in the past. These include, for example, management focusing too much on operations, doing the job and not having a formal process; ad hoc investigations taking up management time; not making appropriate use of the software available; not

fully understanding how beneficial KPIs can be; and finally, standards for the production of KPIs being set too slowly, with KPIs coming out at monthly intervals, with no process for review or actions. Many of these problems will have slowed the process and robbed Saudi Aramco of the overwhelming benefits that could have been won."

Given the critical role of the Finance Department within Saudi Aramco, it was surprising to find that its members found the BSC to be 'less than useful' on the whole. This has serious implications that Saudi Aramco needs to address.

The problems of the BSC mentioned in the proceeding paragraphs cannot be explained by suggesting that the respondents may not have understood the concept or appreciated its benefits after it was implemented, because factor analysis indicated that the items used to measure this concept explained 75% of the variance, which is considered very good. The employees agreed on most of the benefits for Saudi Aramco's performance in assessing the system.

The major implication of all the above is that although implementation was considered a success in that it was completed, it is quite clear that this was achieved at the expense of mediocrity in areas such systems integration and information overload. This certainly had a negative impact on the performance of the BSC.

9.7 Sustainability Phase

To achieve BSC sustainability, Saudi Aramco used a number of methods, with particular emphasis on alignment, accountability and motivation as recommended by Zairi (2001), Neeley (2003) and De Waal (2002). As established in Chapter Eight (Section 8.9), Saudi Aramco used measures such as regular communication and updating of the measures/KPIs; rewards and recognition initiatives; and business excellence models such as EFQM. There was also a general consensus on the need to evaluate KPIs continually in terms of performance and appropriateness. The importance of this continued update is very much emphasised by Self (2004) and by

Philip and Louvieris (2005). According to this study, the continual development of initiatives is a clear objective of Saudi Aramco. This implies change, as reflected in this statement by the Financial Manager (Chapter Seven, Section 7.5.7): "*Each year, the organisation must evaluate its performance, establish goals and KPIs where appropriate, and develop initiatives that will help them to achieve the goals. Reports that talk about 'business as usual' activities have diminished, with increased focus on change management. Reports on the status of our initiatives receive much greater managerial attention.*" We can therefore argue that at top management level, there was recognition for the need for change in order to sustain the BSC.

However, the success of the sustainability measures as perceived by the employees can at best be described as mixed, with several initiatives considered inadequate by the respondents to the structured questionnaire (the managers, not executives/top management). For example, employees did not feel that they received strategic information on a regular basis or that the KPI measures were revisited and redefined regularly. With regard to rewards, employees also felt that the BSC did not focus on an individual's contribution in relation to specific tasks in Saudi Aramco, and more importantly, that the incentives were not aligned with BSC measures. Some of these weaknesses, such as the lack of refinement of KPIs, are linked to the earlier problems relating to how these KPIs were set up in the first instance. The importance of linking reward to performance is highlighted by Kaplan and Norton (1996a) and Franco-Santos et al. (2004). Failure to link rewards to the BSC and the inability of the BSC to focus on an individual's contributions could act as a demotivators. Even in learning and innovation, the respondents felt that Saudi Aramco did not give them strategic feedback on the BSC that had been introduced in some business units. These are issues that Saudi Aramco has to consider seriously.

9.8 Obstacles to BSC

All employees cited resistance to the move away from old techniques as an obstacle to change, while other factors, such as short-term focus, increased workload, failure to understand the company's vision, were also mentioned as significant obstacles to the

success of the BSC programme. These issues were mostly linked to the problems discussed earlier and they thread through the whole process.

Based on qualitative analysis, there was recognition of the limitations of the BSC at top management level. The BSC is supposed to be characterised by clear cause-effect relationships. However, establishing these in practice is not always easy or even possible in some cases. In others, the cause-effect relationships are complex, making clear links between corporate objectives and operational metrics difficult to establish. Indeed, in their study of BAE systems Jazayeri and Scapens (2008) precent very strong views that the cause-effect is not clear cut. This is probably true because there will be many causes for some effects, with some being more important than others. However, a fundamental feature of the BSC is that it depends on cause and effect, particularly as the mapping goes up to the financial dimension. This issue proved to be a challenge for Saudi Aramco, as recognised by the General Manager, Finance. It is notable that this member of the executive management team talked of resistance to change by top management (his colleagues), particularly on the understanding of the people management aspect of change management, although he did say that this had improved. It is likely that the initial idea of the BSC may have originated in the Finance Department, and the Financial Manager also said that the Department was taking the leadership role in the development of corporate level financial performance metrics, which seems to imply a dominant role by this department in the whole BSC exercise. This indicates how difficult it is to make a major change like the introduction of the BSC.

9.9 Conclusions and a suggested Model for Saudi Aramco's BSC

This section concludes the chapter by presenting a summary of the discussion (guided by the research objectives outlined in Chapter one) and suggesting a model for Saudi Aramco's BSC. Given that Saudi Aramco has already introduced the BSC, the model presented here is not for the development of a new BSC; rather it is aimed at making some modification and improvements to the existing BSC in order to reduce its

negative impacts. The model is very largely based on the gaps identified in this investigation, with the incorporation of a small amount of material from the empirical literature. It can therefore be considered an empirical evidence-based BSC model for Saudi Aramco.

We begin this section with conclusions. With regard to the understanding of the BSC by top and middle managers (Objective 1), this research concludes that on balance they had an equal understanding of the BSC as a concept. The same applies to expatriate managers. There was a clear understanding by all those concerned that the BSC, through its four perspectives adopted by Saudi Aramco – financial, customer, internal business and learning and growth – was clearly understood by both top and middle management. What therefore differed between the top and middle managers was not the concepts, but the way they were applied in the operationalisation of the BSC.

The actual implementation process itself (Objective 2) went smoothly: Saudi Aramco successfully introduced the BSC in different phases for each business unit, beginning with the Corporate Department. During the early stages of this investigation, several business units were at different stages of introducing the BSC (Chapter Eight). By the second quarter of 2009, most business units had adopted the BSC. However, the smooth implementation of the BSC appears to have been at the expense of 'glossing over' a major difficulty of the process – the integration of the system with the existing ERP system. On balance, a significant number of employees were less satisfied by the BSC, and the primary reason for this was its incompatibility with the SAP ERP system, rendering the BSC effectively useless for the Finance Department, for example. The data input requirements were also perceived to be excessive. In addition, managers felt that the KPIs were not updated regularly enough to meet the changing situation and that the BSC incentives were not aligned to the measures. Therefore, on balance, Saudi Aramco introduced the BSC sequentially, but although the motivation for doing so was to learn as the process progressed, the empirical evidence gathered in this study suggests the contrary – Saudi Aramco does not appear to have benefited from the sequential introduction of the BSC, because the nature of the problems experienced by the managers did not differ between the various

departments which introduced the BSC at different times. That is, problems of the same type, such as with integration and with poor refinement of the KPIs, recurred often. Therefore there are important issues relating to how Saudi Aramco can benefit from the sequential introduction of the BSC.

This study found no evidence of difficulties in the implementation of the BSC (Objective 3). No specific issues relating to the change process were identified. Indeed, the process was perceived as important by the top management, as evidenced by Saudi Aramco's strong investment in the planning phase, which included setting up teams, some of which were seconded to other worldwide corporations that had introduced the BSC, in order for the Saudi Aramco employees to learn from them. The problems experienced in the implementation of the BSC appear to have had more to do with the 'what' and 'how' of the implementation process. Examples are BSC-SAP integration and issues relating to the update of KPIs. We can conclude that Saudi Aramco managed the people management aspect of the change process effectively, and that any change problems that were experienced were specific to the BSC.

The implementation of the BSC (Objective 4) in essence covers all activities from the planning phase to the commissioning of the BSC. There is strong evidence that top management managed the planning phase very efficiently and quite effectively, although there was also some evidence that the planning phase may have been driven more by the recommendations of the consulting firms and less so by top management, creating the perception among middle managers that this was a top-down approach. There was also scope for more involvement by middle managers to minimise this top-down perception. This issue surfaced on several occasions, despite top management's explicit recognition of the need for a bottom-up approach and despite the setting up of a system that was aimed at achieving this (e.g. teams that decided the details of the KPIs). Indeed, middle managers still had the perception that in practice a top-down approach was taken to the implementation of the BSC. This would imply that some of the managers (possibly the higher middle managers) may not have appreciated the notion of change to the same extent as at least some of the top management or lower middle managers. This study did not find any evidence of a forced top-down approach, nor did it find that the BSC evolved from below in a bottom-up approach.

It appears that the idea originated from the top (recommendations by the McKinsey Group) and that top management introduced the idea to the middle managers. Evidence based on the internal documents presented by Saudi Aramco appears to be consistent with the way that Kaplan and Norton (1992, 2001) recommend that the BSC should be implemented. This is, top management formulates the strategy and other employees are involved in the 'how', including involvement in the setting of KPIs and other measures. In principle, Saudi Aramco's top management appears to have followed the Kaplan-Norton recommendations, but the general perception of the middle managers was that this was a top-down approach. This suggests the existence of a gap between theory/policy formulation and actual practice. Saudi corporate culture, which tends to take a top-down approach, may have contributed to this. This raises issues concerning the effectiveness of the programmes that Saudi Aramco set up to prepare its employees for BSC.

To what extent the BSC has been used by Saudi Aramco as a strategic decision making tool (Objective 5) is not entirely clear from this study. In principle, the internal documentation and interviews with top management show that Saudi Aramco's top managers appeared to genuinely consider the BSC a strategy tool. There was considerable emphasis on the use of KPIs, which are an important element of the BSC. Top management set out the objectives that must be achieved and middle managers developed the KPIs aimed at achieving these objectives, for example. Indeed, the comments of the President and Chief Executive bear testimony to this: "*In my mind is a programme that is designed to give individual managers within the company the tools to measure their performance... We in management are facing many challenges these days. When I say 'we in management' I don't mean only corporate management, but I believe that at all levels, managers will have more freedom to do more and help the organisation to get better*".

However, the flagging system (green, yellow and red) may be interpreted as being prescriptive. When it is green, why bother change or be innovative? Such a system could stifle innovation. In addition, the fact that the Finance Department did not effectively use the BSC raises important questions as to its effectiveness as a strategy tool.

The above finding can be viewed within the context of Jazayeri and Scapens (2008). In their study of the BSC at BAE systems (case study approach), Jazayeri and Scapens strongly argue that on strategy, the BSC does not have any input into the dtermination of strategy; all it does is describe a 'strategy map' from the strategy that is determined independently of the BSC and at best provides 'coordination' in the strategy process. It can be argued based on this study, particulary with respect to the fact that the middle managers (the majority of the users) view the BSC as prescriptive; the way the BSC is used by Saudi Aramco is consistent with 'Jazayeri and Scapens' argument. That is, Saudi Aramco does not appear to fully use the BSC as input into the strategy formulation, but as a diagnostic tool. The fact that the key department of Finance does not use the BSC further supports this view, because finance is a critical component of strategy formulation.

How well the western corporations' conceptualisation of the BSC (decentralisation focus) translated to the Saudi economic culture based on centralisation (Objective 6) was not directly measured in this study. However, analysis of empirical evidence regarding the implementation of the BSC suggests that despite efforts by the top management to adopt a decentralised approach, a centralisation culture still existed in practice and that although there had been significant efforts by the top management to decentralise, in practice, there was still a gap, albeit not very wide.

9.9.1 A Model for Updating Saudi Aramco's BSC

Given the above, the following model is suggested for Saudi Aramco:

Step 1: Present the business case for BSC improvements at business unit level

An element of Saudi Aramco's BSC implementation is that it does not seem to show how the business case was presented to middle managers. As such, the model should consider including aspects of the business case. Given the diversity of Saudi Aramco's activities, the business case would have to be made at business unit level in addition to the corporate level. This means that the costs of the BSC should be related to its advantages. As this study found, many aspects (e.g. the number of measures) differed between the business units. That is, Saudi Aramco should put a business case for any changes that need to be made and should do so at business unit level. The

business case part of the model could include how the following elements, which are important elements of Saudi Aramco's operations, would benefit:

- Customer Relationship Management: This helps in the development and maintenance of customer relationships by tracking customer information throughout the transaction process.
- Supply Chain Management: This enhances relationships between suppliers, business partners and customers.
- Financial management: This processes and interprets the financial data and accumulates financial information. Importantly, this module would enable Saudi Aramco to quickly process payment for small suppliers, who often need their money very quickly.
- Business Intelligence: This would enable Saudi Aramco to store and analyse the data particularly for suppliers, and use it for better decision making. This should show how the BSC will enhance Saudi Aramco's ability to forecast supply/demand, conduct statistical analysis and perform online analytical analysis.
- Human Resources: Benefits would be gained from the administration of the payroll, employee benefits, and so forth.
- Project Management: This should include the capturing of project costs, management of job resources, tracking of materials, labour costs, the calculation of financial indicators, performance measurements and the monitoring of project progress.

Step 2: Identify the reasons why employees perceive that Saudi Aramco has adopted a top-down approach.

In principle, measures have been taken to involve middle managers in the right way, but it appears that there is gap that needs to be filled.

Step 3: Establish the source of the policy-practice gap – whether this is due to top managers, middle managers or junior managers – then take relevant action.

Step 4: Rank the customer perspectives in the model for each business unit.

This is aimed at addressing the relative importance of the perspectives according to the business unit. As found in this study, in some cases customers were ranked highest, while in others they were ranked last.

Step 5: Take measures to ensure that the BSC integrates fully with SAP and any other systems used in the respective business units.

This is crucial, particularly in view of the fact that some new systems may emerge (e.g. new software for oil mining technology) and that these may need to be integrated with the existing BSC.

Step 6: Rank the BSC factors using the ranking provided in Table 9-1 (Table 8-41 reproduced).

Table 9.1 Ranking of BSC factors

Factor	Phase	Mean	Rank
KPIs	Development	1.72	1
Perspectives	Development	1.76	2
Training	Development	2.00	3
Set objectives	Development	2.04	4
Self-assessment	Sustainability	2.12	5
BSC team	Planning	2.21	6
Management (top) commitment	-	2.21	7
Final BSC Plan	Implementation	2.34	8
Cause & effect	Development	2.36	9
Design of information systems	Implementation	2.38	10
Integration	Development	2.38	11
Stimulation of culture	Planning	2.43	12
Communicating BSC	Planning	2.45	13
Shareholder	Planning	2.45	14
Learning & innovation	Learning	2.46	15
Benefits of BSC	Benefits	2.52	16
Corporate alignment	Sustainability	2.64	17
Reward and recognition	Sustainability	2.70	18
Rolling out implementation plan	Implementation	2.71	19
Updating measure	Sustainability	2.79	20
Regular communication	Sustainability	2.85	21
Personal BSC	Implementation	2.86	22
Final measure	Development	3.00	23

Saudi Aramco may decide to classify these factors into major categories such as (1) Dominant Factors, (2) Main factors and (3) Supporting factors, based on the scores as presented on Table 9.1. What is important is that the classification has to be based on

two main criteria – the business unit and the fact that these factors are for the modification of the existing BSC, not the introduction of a new BSC.

Step 7: Revise/Re-evaluate the KPIs and the number of BSC measures needed for the improved BSC.

Saudi Aramco must ensure that the correct management behaviour is implemented, to make use of good KPIs. Managers must decide upon the right KPIs, at the right frequency and in the right degree of detail for its given functions, in terms of results, knowledge and motivation. These KPIs should be re-evaluated regularly to suit the dynamic business environment.

9.10 Summary

This chapter has presented a discussion of the major findings of this study derived from the integration of the qualitative and quantitative findings and from internal reports provided by Saudi Aramco. It has considered the extent to which the BSC critical success factors have affected its implementation and their implications have been discussed. A model has been proposed that Saudi Aramco could adopt during the process of updating the BSC. The next chapter concludes the study.

10. SUMMARY AND CONCLUSION

10.1 Introduction

The research presented in the preceding chapters comprises a descriptive study of Balanced Scorecard implementation. The intention of this study was to conduct a thorough examination of the BSC implementation experience of Saudi Aramco.

In recent years the BSC has attracted considerable interest, in practice as well as in theory. A great deal of literature on the BSC concept has been published and there have been countless seminars and workshops dealing with BSC issues. Success stories of companies that have implemented BSC seem to promise high benefits for BSC users. Several surveys indicate that the BSC concept is widely used in large companies in the United States and throughout Europe, but as it is still in the process of adoption in developing countries such as Saudi Arabia, this research was designed to bridge the gap between the practice and theory of BSC in Saudi Arabia.

To address these issues, the following research objectives were developed:

1. To investigate whether all middle and top-level managers in the Financial Accounting and Corporate Planning departments of Saudi Aramco have the same understanding of BSC. Is it a strategy map for Saudi Aramco?
2. To investigate how BSC has been implemented in Saudi Aramco. Was the process sequential or was it implemented all at one time and why was this choice made?
3. To investigate how difficult the implementation process was.
    a. Was the change process an important element in BSC implementation?
    b. Was it a problem simply of change, or was it specific to the BSC?

4. To investigate whether all managers in Saudi Aramco have the same understanding of 'change'. Was BSC forced from the top down or did it evolve from the bottom up?
5. To investigate whether BSC has any influence on Saudi Aramco's strategic decision-making or whether it is a mere description of strategy in the company.
6. To discover whether the understanding of BSC in Western countries translates to Saudi Arabia. How does the decentralisation focus of BSC fit in with the Saudi economic culture of centralisation?

The purposes of this chapter are to crystallise the most important points from the preceding chapters and to present some conclusions. Contributions made to the theoretical literature and implications for managers in organisations are also detailed. The limitations of the present research are then discussed and recommendations made for further research.

10.2 Summary of Thesis Content

This section summarises in turn the contents of each of the chapters of the thesis.

Chapter One outlined the rationale and objectives of the study and gave a general introduction to the research.

Chapter Two provided an overview of the setting of the study, i.e. Saudi Arabia, drawing attention to the implementation of a long-term economic development strategy founded on the acceleration of economic growth, the distribution of its fruits in a balanced manner, the development of human resources and the diversification of the economic base and of sources of national income, in order to develop economic channels to supplement revenues from crude oil exports. However, oil remains the single most important engine of Saudi Arabia's economic growth; the oil sector still accounts for half of the gross domestic product, although the importance of oil is not

limited to this figure. The economy today still depends to a large extent on the performance of the oil and gas industry.

Chapter Three provided a detailed overview of Saudi Aramco, its history, development, objectives, organizational structure and operations (domestic and international). It placed Saudi Aramco in the context of the international oil industry and discussed its relations with OPEC and the WTO. It also provided a brief introduction to the performance measurement system applied in Saudi Aramco and identified the ten key financial initiatives which align with its strategic imperatives.

Chapter Four gave a detailed explanation of management control and strategy, and of the link between performance measurement and strategy. It started by giving a general introduction to management accounting, following which there was a brief discussion of the special case of SOEs such as Saudi Aramco, then a definition of PMs and a discussion of the need for measurements. It then classified the various types of PMS as market-based, accounting-based and non-financial-based. The literature reveals a need to combine financial and non-financial PMs. Moreover, non-financial measurements are necessary in the current environment where organisations are faced with developments like increased competition, new manufacturing practices and continuous improvement. This chapter also discussed the advantages and disadvantages of the various frameworks, of which organisations must choose the one most suited to their objectives. It can be concluded from the general overview provided here that performance measurement is an important function of the management accounting information system.

Chapter Five aimed to give the reader a broad overview of the BSC literature. It covered in depth the suggested CSFs found in the literature on BSC; an extensive review of literature on existing CSF models for BSC implementation was conducted. The CSFs of BSC implementation include executive and management commitment, planning phase factors (such as BSC team and culture stimulation), development phase factors (such as training and integration), implementation phase factors (such as information systems and the cascading of the BSC), benefit realisation (such as regular reporting and problem solving), sustainability phase factors (such as BSC

automation and updating measures) and learning and innovation. The chapter also discussed the movement from performance measurement to performance management and the use of the BSC as a strategic management tool.

Chapter Six reviewed and discussed some of the research design and methodology issues that researchers need to deal with. Additionally, it attempted to explain briefly the features of quantitative and qualitative research and to justify the adoption of the triangulation strategy, combining the quantitative and qualitative approaches to the collection and analysis of the data. In the case study of Saudi Aramco, in-depth interviews were conducted with senior vice presidents of Finance and Corporate Planning, and with other mid-level managers, providing data on their experiences and ideas concerning these particular issues. A website questionnaire survey was chosen in order to achieve triangulation. This allowed a richness of data and a comprehensive treatment of the elements which constitute a holistic approach to BSC implementation. The online questionnaire was sent to 70 mid-level and top managers in the departments of Finance and Corporate Planning, of whom 29 responded.

The validity and reliability of this study were discussed in some depth in this chapter. Internal validity and reliability were strengthened by using triangulation to minimise the weaknesses of the data collection methods. As it is not intended to generalise the findings of this research to other oil companies or SOEs, the research was designed to achieve internal validity only.

Chapter Seven provided a detailed description and analysis of the qualitative primary data collected. The critical success factors for implementing BSC were identified, according to whether they concerned vision, mission, values and strategy, management commitment, the planning, development or implementation phases, the benefits of BSC, sustainability, or learning and innovation. From the interviewees' responses and perceptions, listed in Table 7.4, it was found that a number of the CSFs identified in the literature review also applied to the BSC programme in Saudi Aramco.

Chapter Eight presented the results of the quantitative data analysis. The respondents' profile was presented, showing that the sample was reasonably well represented overall. The motives and requirements for BSC were analysed. The critical factor of management commitment and other critical and key success factors in the various stages and phases—planning, development and implementation—were analysed. The benefits of the BSC were also explored. Its sustainability and the learning and innovation aspects of the system were investigated. The major obstacles to implementation were then examined. The factor analysis and reliability results were very high, indicating that the constructs and concepts were appropriately measured. Summated rating scales were developed to assess the relevance of the critical success factors. The key BSC success factors were ranked by mean scores. The impact of demographic variables was tested using ANOVA. These investigations were performed using robust statistical techniques such as the z-proportion test, factor analysis, t tests, correlation tests, reliability tests and ANOVA.

10.3 Main Findings

Objective 1 set out to investigate whether all mid- and top-level managers in the Financial Accounting and Corporate Planning departments of Saudi Aramco had the same understanding of BSC. The analysis of qualitative interviews with the top managers and the quantitative survey of the middle managers showed a clear understanding of the concept of the BSC by both levels of managers in these departments. Top managers were well aware of the need to set out the objectives that were linked to strategy, and to leave it to middle managers (the main users) to deal with the 'what' and 'how' aspects of BSC implementation. Middle managers were involved at the Kaplan-Norton recommended stage of involvement. Teams were formulated with specific tasks, including secondment to other organisations that had implemented the BSC. Training course was also run. In short, there was very strong evidence that top managers had followed the spirit of Kaplan's and Norton's (2001) recommendations regarding the need for the lower levels of management to appreciate the BSC at a very early stage. Therefore we can conclude that any differences of opinion regarding the BSC between the two levels of management and between Saudi

nationals and expatriates caused no difference in the understanding of the BSC concept.

Objective 2 set out to investigate how BSC had been implemented in Saudi Aramco. From an operational point of view, on balance, the implementation was found to be a success, because Saudi Aramco had managed to complete it in these two major departments and continued to do so in others in a sequential format. However, it was also very clear from this investigation that although the 'mechanical' process was a success, the usefulness of the BSC was not appreciated by all managers. Indeed, a significant number of them were dissatisfied with the outcomes of the BSC. A problem central to this dissatisfaction was the poor integration of the BSC with the SAP ERP system. Such was the incompatibility that that the Finance Department had hardly migrated from SAP, with many employees not using the BSC at all or using it only in some limited ways. Other problems included the failure to update the KPIs and the lack of a link between incentives and BSC measures. On balance, we can conclude that the BSC was a success in terms of systems installation, but not in terms of functionality.

The issues raised by Objective 3 related to practical difficulties that may have been experienced by Saudi Aramco in implementing the BSC. No major problems or barriers were identified in this study. However, the fact that many managers were unhappy with the integration of SAP and the BSC, and with the inadequate attention given to the complexities of input data requirements, raises important questions concerning the benefits of following the line of least resistance. It was evident in this study that integration with SAP (the major accounting software used by Saudi Aramco) was a serious problem, which the implementers had decided to skim over.

Objective 4 raised addressed problems that may have been experienced during the implementation of the BSC with particular references to change management. There were no apparent barriers due to change management, thanks mainly to a well-managed planning phase. Additionally, it may well be that despite the efforts made by the top management to involve middle managers, the latter still perceived this as a top-down initiative, so may have avoided showing any resistance because Saudi

business culture has traditionally been centralist. But a top-down approach is contrary to BSC principles, which implies that the usefulness of the BSC would have been debatable. As this study found, many managers were indeed not satisfied.

Objective 5 set out to investigate whether BSC had any influence on Saudi Aramco's strategic decision-making or whether it was a mere description of strategy in the company. In principle, an analysis of the internal documentation, the procedures put in place by Saudi Aramco and the views of top managers, including the CEO, show that that top management considered the BSC as a strategy tool. The extent to which the middle managers shared this view is not so clear cut. There was some evidence in this study that some middle managers may have used the BSC as a prescriptive tool, because they felt that there was too much emphasis on KPIs and that there was no link between their incentives and the BSC.

The final objective (Objective 6) raised issues of how well the Western-developed (decentralised) BSC would translate to a country whose culture is based on centralisation. It was very clear from this study that despite the apparent understanding of top managers and their efforts to adopt a decentralised approach, middle managers, irrespective of nationality or department, perceived there to be a top-down approach. Therefore, there are important issues relating to the gap between policy and practice.

On the basis of these findings, it can be argued that this study has achieved its objectives. Its contributions and implications are discussed below.

10.4 The Main Contributions of the Research

10.4.1 Theoretical Contribution

This research has made a contribution to the development of theories of BSC, as the theoretical body of knowledge is still immature in developing countries such as Saudi Arabia. Specifically, the study has contributed empirical evidence of the type of problems that can be encountered in implementing the BSC in corporations and countries with a centralist business culture. The line-of-least-resistance (top-down)

approach to implementation can turn out to be very expensive, because of the poor uptake of the BSC.

The study has also contributed to theory-building, through a literature search and critical analysis of Saudi Aramco's internal documents, by bringing together a large body of relevant literature relating to BSC and unifying various schools of thought into one integrated perspective. In addition, it has assessed the CSFs of BSC implementation, distilled from a comprehensive analysis of these factors from the perspectives of both middle managers and top management. Finally, it has produced further evidence supporting the established view that successful implementation is subject to a genuine understanding and appreciation of the BSC concept and to the rationale and motivation of both top and middle management.

Another contribution made by this study is that it has put in the public domain certain descriptive information about Aramco, obtained through descriptive analysis. While this may appear trivial in other situations, in the case of the powerful and secretive Saudi Aramco (Chapter Four), descriptive information presented in this study will provide crucial information with regard to the BSC.

10.4.2 Methodological Contribution

This study has made some marginal contributions to methodology in investigating the BSC. A single-case study based on either a qualitative or quantitative strategy alone would be inadequate to obtain an in-depth understanding of a phenomenon. Thus, this study of BSC implementation in Saudi Aramco contributes to the methodology of research by demonstrating the application of the triangulation of qualitative and quantitative methods. A qualitative method (interview) was used to obtain basic data on how the implementation process worked and to clarify the issues that were important to Saudi Aramco. These were then used in conjunction with the CSFs identified in the literature to develop the structured questionnaire. The quantitative data gathered from this was analysed using inferential statistics, thereby enabling the presentation of robust conclusions. The third approach, critical analysis of internal Saudi Aramco documentation, provided a further crucial source of information.

Another important methodological contribution is in paving the way for future research on how to access information in Saudi Aramco, which is an institution unto itself. Economists vary in their assessment of its size because Saudi Aramco does not publish its financial statements. Chapter Four has described in detail how powerful Saudi Aramco is; yet the corporation is not even listed on the stock market. That is, there are no product-market and labour-market disciplines acting in the case of Saudi Aramco. Its monopoly position and dominant role in the economy remove the possibility of managerial control through the product market. In addition, the labour market does not work efficiently, as managers are rarely sacked for poor performance. There are many gaps in basic knowledge about this corporation. For example, its contribution to Saudi GDP has been estimated at between 44% (IMF, 2006), 54.6 (SAMA, 2007) and 70% (senior manager in Saudi Aramco, Chapter Seven, section 7.4.1). Trying to obtain any information such as that required for this study has always presented a major challenge, which explains why this research was essentially limited to two business units. However, the researcher was able to circumvent some of the problems by obtaining a letter from the Minister of Petroleum, who is the Chairman of Saudi Aramco, and by agreeing to distribute the structured questionnaire over the internet, as demanded by Saudi Aramco, as a way of ensuring confidentiality. There was no evidence to suggest that the answers were influenced by top management. Therefore, future researchers could adopt similar approaches to the study of other businesses in relation to the BSC or to other issues.

10.4.3 Practical Contribution – Implications for Managers

This study has a number of useful practical implications for managers in large organisations. First, it contributes to an understanding of issues related to BSC implementation. Managers should realise that the successful implementation of the BSC does not necessarily imply that the process was done in the right way, or that the BSC will automatically be adopted and embraced. We see from this study that despite the successful introduction of the BSC, employees perceived it as part of a top-down approach to management. Consequently, they did not challenge the top management enough on the potential problems of integration with existing software (in this case the ERP system) resulting in the underutilisation of the BSC. This passivity may also

be due to the fact that middle managers had become accustomed to receiving ideas from above. Thus, even if top management had set in motion measures to encourage a bottom-up approach, this opportunity might not have been taken up. Therefore, top management needs to consider evaluating the success of culture change before implementing major programmes such as the BSC.

Second, according to Kaplan and Norton (2001, 2005), in developing the BSC, senior managers should determine overall preparedness, identify barriers and consider critical success factors. Then they should elicit the participation of all members of the management team and key representatives of other employees to ensure their compliance with the outcomes of the process. At the departmental level, employees should be asked to select strategic objectives and create their own measures of performance, which can be taken into consideration at the management level. This study found that Saudi Aramco's top management did this, yet the outcome of BSC implementation left many managers dissatisfied. What the top management needs to consider more in the future is why employees allowed the process to continue without assisting top management in identifying barriers such as integration problems (which were then glossed over) and the seemingly excessive demands of input data required by the BSC. There is a need for Saudi Aramco to review the communication process within the corporation, with the primary aim of encouraging genuine involvement by subordinates. Basically, the BSC may be inadequate to change employees' orientation from centralist to decentralist.

Third, in developing the BSC, members at the management level need to consider adopting a systems thinking approach to examining the causal relationships between the different types of measures. For the performance measures to guide action towards attaining specific goals, management needs to consider focusing on understanding the cause-and-effect flow both within and between scorecard perspectives. This is particularly important in view of the fact that managers still preferred the SAP system and those who adopted the BSC still felt very strongly that their role was to succeed in their own objectives, which they did not link with those of Saudi Aramco. Again, this behavioural aspect is linked to the need for culture change. Given the national culture,

Saudi Aramco needs to consider the merits of incremental change versus the radical changes that are associated with the BSC.

Fourth, strategic objectives, measures and performance should be reviewed periodically to ensure that they are compatible with organizational goals. Selected measures must also be taken to evaluate the organization's progress in making the necessary changes. The re-evaluation of KPIs was clearly a contentious issue for the managers, who felt strongly that Saudi Aramco was not doing this regularly enough. Saudi Aramco should consider adopting the re-evaluation model suggested in this study (Chapter nine).

Fifth, a major feature of the BSC is that it is possible to assign a value to the BSC. This point is presented by Kaplan and Norton (1992, 2001, and 2005) who strongly argue that the BSC creates value for the company. However, Jazayeri and Scapens (2008) have very strong but opposing views- the BSC does not create value. So strong is their opinion that they do not even attempt to assign a value to the use of the BSC. This rational for their argument is that there are too many variables that impact on the value creation. Therefore, managers need to consider this issue whenever they use the BSC.

Sixth, in the specific case of Saudi Aramco, the success of BSC implementation depends on the ability to integrate the BSC with SAP and similar systems, and on a communication programme running beside the actual BSC initiative. To do this, the company needs to look again at the effectiveness of the BSC awareness campaign using various communication tools as part of its change management process, taking corrective measures as required. During change management, it should also attend to the transformation of employees, to allow them to participate effectively. If employees are encouraged to participate, Saudi Aramco may be able to find why the employees still feel that the BSC is a top-down approach despite all the efforts made by the top management to comply with the BSC implementation guidelines which encourage a bottom-up approach.

Finally, top managers in Saudi Aramco, who were found in this study to be very committed to the BSC and also appeared to believe in linking their performance measurement systems to business strategy in order to increase and enhance the company's ability to achieve the required objectives, need to consider why this is not as successful as was predicted. Could it be that that the company ignored the difficulties associated with the BSC? There is a need for careful introspection to find the root of the problem, in addition to training key people in conducting scorecard definition workshops, an effectively managed awareness campaign and the development of a detailed manual on guidance and roles.

10.4.4 Implications for the Saudi Government

This study has some important implications for the Saudi government. It was clear from this investigation that obtaining information from Saudi Aramco was indeed a very difficult task. Given the importance of Saudi Aramco to the national economy and the fact that Saudi Aramco is not 'grilled' by the market because it is a state-owned monopoly, it is crucial that Saudi Aramco should at least be studied by neutral researchers in order to find way of improving its performance. However, to do this, researchers need access to important but not necessarily confidential information. The government should consider appointing an information commissioner, who would decide on what information Saudi Aramco should provide to researchers. Rules on the use of confidential information should also be established. The amount of information that is categorised as confidential should be reduced significantly, because it is currently possible to hide incompetence behind claims of confidentiality. This research is not suggesting that freedom of information should be as extensive as in Western countries like the UK, because the Saudi economy and culture may not be ready for such a major transformation. However, the amount of information made available to researchers at the doctoral level or above should be significantly increased. The primary argument here is that if the markets cannot control Saudi Aramco's management, then high level research should be encouraged, through access to important information, to try to improve performance through empirical studies.

10.5 Research Limitations

As with all management accounting research, this study is subject to a number of limitations, which might be explored in future research. The most significant is that the study was confined to only one (albeit very large) company operating in one industrial sector, namely Saudi Aramco. It may be that the results of such a study cannot be extrapolated to other companies, industrial sectors or countries. The corporate cultural and contextual differences might cause differences in the results. The limitations of previous studies were considered carefully and were used to provide the framework for the present study.

The second main constraint was the timeframe. Given the limited time available, a complete investigation of the phenomenon under consideration could not be undertaken, especially by using a case study approach. Although all possible efforts were made to interview as many people as possible in Saudi Aramco, the company allowed the participation of only three members of the Corporate Planning Department, three from the Finance Department, one from Marketing and a short interview with the CEO.

This study was also limited by the methods of data collection used. The primary data was collected in semi-structured interviews. The various shortcomings of interviews have been recognised, discussed and dealt with in detail in Chapter Six. Despite the rare successes in accessing such information at Saudi Aramco, there were still some difficulties in accessing certain information whose availability might have improved this investigation further. Public officials were particularly hesitant to release information relating to major political issues or events. Access to such information was impossible for reasons of confidentiality.

The fourth limitation the lack of academically published literature on the BSC in Saudi Arabia, which may have adversely affected the results of the study.

Despite the above limitations, the researcher believes that the study has been successfully executed and provides new understanding in the research area studied, shedding light on the under-researched area of BSC issues in Saudi Arabia.

10.6 Recommendations for Future Research

One of the aims of future BSC research should be to continue the investigation of its implementation in order to develop theoretical expectations regarding the significant variables and differences between BSCs. The understanding of BSC implementation could be further broadened through the inclusion of studies where it is considered to have failed.

- The focus of future research should be on studying the effectiveness of the BSC in similar and dissimilar contexts and field settings, as well as on the expected time lag prior to observing results and the circumstances affecting the length of time before results are observed. Research should determine whether performance improvements are sustained in the long term or are mere short-term anomalies. Further research should study how the benefits of the BSC are affected by different industry characteristics, including type of industry, level of competition and type of strategy.
- Further research should also put emphasis on understanding how measures are actually derived from strategies. Is there a change in these practices when new information reaches organizations (e.g. Kaplan and Norton, 2000; Kasurinen, 2002)? How are measures cascaded in practice? Do different methods of cascading, both analytically and organizationally, lead to different outcomes? Finally, research should explore in more detail whether the adoption of BSC and the attempt to construct measures based on supposed cause-and-effect relationships have an impact on organizational strategies.

- There is a also a need for Saudi Aramco to conduct further research on why the policies and procedures that the corporation put in place still resulted in so many managers being dissatisfied and feeling that BSC implementation had

followed a top-down approach. Additional research also needs to ask why the integration with SAP failed so comprehensively, despite this aspect of the implementation process having been identified in the literature and at Saudi Aramco's planning phase as arguably the most crucial critical success factor. Is it because the employees did not rise to the occasion, or because in reality, the implementers just wanted to go on with the project whatever the problems? These are important issues that must be explored.

- It may be possible to refine our empirically based model through further case-study research. Case studies in different BSC settings may reveal more variables that intervene in or moderate the relationship between strategic alignment and organizational performance. In the case of Saudi Aramco and with specific reference to the need for regular review of KPIs, valuable insights may also be obtained by investigating how to link rewards effectively to both business unit performance (at the functional level) and corporate performance (Langfield-Smith, 1997).

- Future replication of this study in Saudi Aramco, for example, could provide further enhanced understanding of the selection and use of BSC, and a more complete picture could be obtained. There is potential for future studies to be carried out across all departments in this company. Research into factors such as management style, organizational culture, the level of innovation, cost control strategies, macroeconomic context and style of leadership could also provide an improved understanding of the selection and use of BSC tools which would add value to the area of study.

- Future studies could also investigate in greater depth why and how other organisations in Saudi Arabia have implemented the BSC, the pitfalls that they have encountered and how they achieved their goals. Alternatively, such studies could compare the particular BSC tools with other performance measurement tools.

- Finally, there is a need for additional research into business strategies and performance measurement in Saudi Arabia. This study is indebted to the progress that has been made during the last few decades. In many respects, for example, findings from the present study lend support to previous work on the BSC and performance metrics. Nonetheless, additional studies need to compare corporate behaviour in Saudi Arabia with its Middle Eastern and Western counterparts.

10.7 Conclusion

This study has provided several important insights into issues relating to the Balanced Scorecard. It is one of the first to investigate how Saudi Aramco has dealt with this tool of improvement, and provides a detailed analysis of the critical success factors of its implementation programme. Given the size and importance of the company, its adoption of this performance measurement tool has the potential to make a great impact on the whole Saudi economy, so that studying BSC implementation in Saudi Aramco was a very important research objective. This research has also contributed to the management accounting literature by providing some guidance for future BSC implementation, especially in the context of developing countries. Finally, it is hoped that the theoretical and empirical findings presented in this thesis will help to improve the understanding by academicians and managers of how to implement the Balanced Scorecard effectively.

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Appendix A: Interview Questions

1. **Background information**
    a. What is the size of your organization in terms of number of employees?
    b. Your position?
    c. Could you please provide me with a brief background about the BSC project in Saudi Aramco? (Why Saudi Aramco requires BSC and the reasons for implementing BSC in Saudi Aramco).
2. **Vision, Mission, Values and strategy**
    a. Does the organization (Corporate planning Dept. and Finance Dept.) have a clear mission, vision, values, and strategy?
    b. Did the organization draw a strategy map and devise a set of initiatives to be achieved before implementing BSC in these departments?
3. **Executives' and senor managers' commitment**
    a. What was the role of the executive and senior managers in supporting the BSC?
4. **Planning Phase**
    a. Did BSC start at the same time for the whole company or one department at a time?
    b. Did the organization develop a plan for BSC implementation?
    c. Did the organization approve a special team work on the BSC project?
5. **Development Phase**
    a. Is there an emphasis on skills development and training in the organization?
    b. Was the BSC integrated into a strategic management system?

c. What perspectives did the organization use to organize the measures for reporting purposes? Did those perspectives adequately capture the focus of the organization's strategy? Did the organization decide the key objectives in each perspective?

d. Did the organization establish relationships and linkages between the key performance indicators?

e. Was the BSC integrated into a strategic system? If so, was it difficult to do? What were the integration processes?

6. Implementation Phase

a. Did the organization develop a BSC implementation plan? How?

b. Did the organization's information systems communicate the BSC requirements and best practice indicators? How?

c. Which approach did the organization follow in implementing the BSC? Were business objectives linked from the executive level down to the lower business level?

7. Realization of Benefits

a. Has the BSC helped the organization to fulfil its strategy and to achieve its goals? How?

b. Has the BSC provided significant organizational benefits, process and quality benefits, customer satisfaction benefits, or financial and competitive benefits?

8. Sustainability Phase

a. To what extent is the organization's BSC automated? Which software do you use?

b. Does the BSC play a role in the alignment of your organization's strategic objectives?

c. Does the organization do a self-assessment? Which model is used?

9. Learning and Innovation

a. Is there a learning environment which encourages people to share best practice, knowledge and innovate? How?

10. BSC Obstacles

a. From your experience, could you please indicate the obstacles that the organization may have encountered in BSC implementation?

Appendix B: The Questionnaire Survey

Dear

Recently, corporate leaders in the oil and gas industry have been confronted with a number of challenges, virtually all of which carry with them enormous risks as well as potential opportunities for growth and improved performance. The Balanced Scorecard (BSC) has become an important and practical tool to drive performance achievement in organizations. The concept, introduced by Kaplan and Norton, has provided companies with a strategic management system that can be cascaded down from strategic to operational level, mapping performance in readily measurable and understandable performance indicators, linking and integrating every business line in the organisation.

A major part of this study aims to assess the use of a BSC concept as a tool for improving and measuring company performance. For this purpose, a questionnaire is divided into nine parts dealing with aims and objectives, management commitment, planning, developing, implementation, benefits of BSC, sustainability, learning and innovation, and BSC implementation obstacles.

We would be greatly appreciative if you could complete the enclosed questionnaire as applicable to the experience of your own organization. The analysis of all the questionnaires will provide the basis for identifying best practices and highlighting the key critical success factors.

We would very much appreciate your participation, since the success of the research is dependent upon receiving a maximum number of responses. Your answers will of course be treated as ***strictly confidential*** and the information will be used only for the purpose of the study. You should know that the study's findings, like those of other research, will not be available for at least 3 years.

We will be pleased to send you an executive summary once the key research findings are published. If you would like to receive one, please e-mail Mohammed.Al-sumairi@ncl.ac.uk

We look forward to receiving your completed questionnaire as soon as convenient. Many thanks for your kind support and co-operation. We believe that in completing the questionnaire, you will gain available insight into how a control system such as BSC creates value for the business.

Yours sincerely,

Prof. A.R. Appleyard
ICAEW Northern Society Professor of Accounting and Finance

Mohammed M. Alsumairi
PhD researcher

Name of organisation: .....

Name of participant (optional): .....

No. of years in organisation: .....

Your role in the organisation (please tick)

Corporate Management Executive Management General Management Other .....

Organisation's main activity:

Transaction Support Decision Support System & Controllership Other .....

Gender Male Female

No. of employees in the organisation (please tick):

1 – 50 51- 100 1001- 150 151- 200 Over 200

2- Aims and Objectives

Please tick the box which applies or circle the number which most closely corresponds to your opinion: 1 = Strongly agree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly disagree

1)	The following questions concern the motivation for introducing a management control system (MCS) such as the BSC.		
	a)	The organisation has a clear strategy, vision, mission, and values	☐Yes No
	b)	The organisation has clear objectives in its operating & business plans	Yes No
	c)	The MCS is an important aspect in creating value for the business	1 2 3 4 5
	d)	The MCS is as important as the oil price in the success of the business	1 2 3 4 5
	e)	The BSC was considered together with other MCSs such as EVA	Yes No
2)	The BSC was introduced to :		
	a)	Improve profitability in the business	☐Yes No
	b)	Replace a previous system which was not meeting the objectives of managerial control	☐Yes No
	c)	Link or translate the strategy of the business to its operations	☐Yes No
	d)	Identify key performance indicators (KPIs) for the business rather than link strategy to operations	Yes No
	e)	Help managers in the business to measure and manage the intangible assets for value creation, such as better customer relations, happier employees	☐Yes No
	f)	Help managers manage the business in the best interest of the shareholders	☐Yes No
3)	For the BS to be successful :		
	a)	There would need to be changes in the business's organisational structure	1 2 3 4 5
	b)	It was recognised that senior management had to be committed	1 2 3 4 5
	c)	The senior managers must communicate the business strategy to middle managers	1 2 3 4 5
	d)	There has to be a clear cause and effect relationship between KPIs and the desired outcomes	1 2 3 4 5
	e)	Criteria need to be established by which to measure success	1 2 3 4 5

2- Management Commitment

Please circle 1= Strongly agree; 2 = Agree; 3 = Neutral; 4 = Disagree; 5 = Strongly disagree

1/1	Top management has assumed responsibility for the success of performance management	1 2 3 4 5
1/2	Top management allocated adequate resources and time for the BSC project	1 2 3 4 5
1/3	Top management is able to resolve conflicts in a way that maximises benefits to the company	1 2 3 4 5
1/4	Who of the following has authority over the final version of the operating unit's plans? ☐ The government ☐ CEO ☐ Board of the company ☐ Top Committee of the company ☐ Other, specify	

3. Planning Phase

Please circle 1= Strongly agree; 2 = Agree; 3 = Neutral; 4 = Disagree; 5 = Strongly disagree

1- Choosing Unit		
1/1	There has to be a clear strategy guiding BSC implementation	1 2 3 4 5
1/2	The first use of the BSC was at: (please tick one) ☐ Corporate level ☐ Business line level ☐ Other, specify ☐ Admin. area level ☐ Department ----------	
1/3	The organisation carried out a strategic evaluation of each business unit before implementing BSC. ☐Yes No	
1/4	A pilot study was used ☐Yes No	
2- Stimulation of culture		
2/1	Saudi Aramco educates employees and prepares them culturally for BSC implementation.	1 2 3 4 5
2/2	Organisation's legacy system (business process, structure, culture, and IT infrastructure) was evaluated before BSC project implementation. ☐Yes No	
2/3	The BSC in your organisation shifted managers' efforts from a single-minded focus on growth/financial figures to a broader set of objectives that encompass profitability and non-financial performance.	1 2 3 4 5
2/4	The organisation's climate, culture & behaviour changed after implementation of BSC	1 2 3 4 5
3- Shareholder (Gov.)		
3/1	The organisation identifies the critical processes that should be excelled at in order to meet the objectives of shareholders.	1 2 3 4 5
4- Transfer Pricing		
4/1	How are internal transfer prices established? ☐ Actual cost ☐ Market base ☐ Cost plus ☐ Negotiated price ☐ Other, specify ----------	
4/2	Transfer prices are a major issue in the design of BSC	1 2 3 4 5
5- BSC team		
5/1	The organisation has approved a special team for the BSC project. ☐Yes No	
5/2	BSC team is visible and has access to senior and middle management.	1 2 3 4 5
6- Communicate BSC		
6/1	The BSC is communicated throughout the organisation from the top to the lowest level.	1 2 3 4 5
6/2	The organisation provides commentary & written guidelines for users of BSC ☐Yes No	

4. Developing Phase

Please circle 1= Strongly agree; 2 = Agree; 3 = Neutral; 4 = Disagree; 5 = Strongly disagree

1. Training		
1/1	Employees are regarded as valuable, long-term resources worthy of receiving education and training throughout their careers.	1 2 3 4 5
1/2	Top management arranges adequate resources for employee education and training.	1 2 3 4 5
2. Identify BSC perspectives		
2/1	What perspectives does the organisation use to organise measures for reporting purposes? (please tick only one) ☐ Kaplan-Norton's four perspectives (Financial, Customer, Internal Process, Learning & Growth) ☐ Accenture's Value Dynamics (Physical, Customer, Financial, Employee & Supplier, Organisation) ☐ Baldrige Criteria (Leadership, Strategic Planning, Customer, Information and Analysis, HR Focus, Process Management, Business Results) ☐ European Foundation for Quality Management - EFQM perspectives (Leadership, People, Policy & Strategy, Partnerships and Resources, Processes - Results: People, Customer, Society, Key Performance) If the above are not used, how many perspectives does your BSC comprise? Please list. 1. ..... 4. ..... 2. ..... 5. ..... 3. ..... 6.	
2/2	To what extent do you agree that the following are important to the organisation's BSC?	
	1. Financial perspective	1 2 3 4 5
	2. Customer perspective	1 2 3 4 5
	3. Internal Business Perspective	1 2 3 4 5
	4. Learning and growth perspective	1 2 3 4 5
2/3	These perspectives adequately capture the focus of the organisation's strategy and provide a balance between the financial and nonfinancial perspectives.	1 2 3 4 5
3. Set objectives, measures, targets, & initiatives		
3/1	The organisation designs a set of key performance measures that quantify the achievement of objectives.	1 2 3 4 5
3/2	Before implementing these measures, the organisation defines performance targets.	1 2 3 4 5
3/3	The organisation's measures are aligned to strategies.	1 2 3 4 5
3/4	The organisation's KPI measures/result is regularly discussed in management meetings.	1 2 3 4 5
3/5	How many measures does your business unit identify for the BSC? (please tick only one) ☐ Less than 10 ☐ 11-20 ☐ 21-30 ☐ 31-40	
5. Final measures		
5/1	Customers are involved in establishing objectives and measures for the customer perspective.	1 2 3 4 5
5/3	What benchmarks your does your department use to support in the financial decision making process? ☐ Profit Margin ☐ ROCE ☐ EVA ☐ NPV ☐ IRR ☐ Other, specify----------	
5/4	☐ With the government as the shareholder, how does this affect your organisation's objectives? .... ☐ Have they changed since the introduction of BSC? ☐Yes No	
6. Cause-&-effect linkage		

6/1	The organisation's BSC provides cause & effect relationships	1 2 3 4 5
7. Integration		
7/1	It was difficult to integrate the BSC into existing management system(s).	1 2 3 4 5
7/2	The BSC is integrated into the existing management systems ☐Yes No	
8. KPIs		
8/1	KPIs can be introduced only with consideration of strategy	1 2 3 4 5

5. Implementation Phase

Please circle 1= Strongly agree; 2 = Agree; 3 = Neutral; 4 = Disagree; 5 = Strongly disagree

1. Develop implementation plan

1/1 What were/are the business reasons driving the organisation to successful BSC design implementation? (Please tick all that apply)

- ☐ To improve business performance
- ☐ High customer-oriented culture
- ☐ Success stories of BSC
- ☐ Accommodating business growth
- ☐ Rising importance of non-financial measures
- ☐ Rising importance of performance measurement
- ☐ Dissatisfaction with financial based standards/measures
- ☐ To support new business strategies
- ☐ Replacing older/obsolete financial-based standards
- ☐ New method that also deals with intangibles
- ☐ Current systems inadequate for fully integrated reporting
- ☐ Other, please specify .....

1/2 What is the current stage of overall BSC implementation in the organisation? (Please tick only one)

☐ Planning ☐ Beginning of Implementation ☐ Mid-way implementation

☐ Fully Implemented ☐ Successfully Deployed/Realisation

2. Final BSC plan

2/1 The organisation's measures accurately depict the objectives it is attempting to evaluate — 1 2 3 4 5

3. Design of information system

3/1 Management information systems in the organisation communicate BSC requirements and best practice — 1 2 3 4 5

3/2 How do you value the financial accounting information system?

- ☐ Completely satisfactory
- ☐ Satisfactory but room for improvement
- ☐ Not at all satisfactory
- ☐ Other, please specify .....
- ☐ Your suggestions for improvement

.....

.....

3/3 What is the relationship between BSC and financial accounting?

.....

.....

.....

.....

.....

☐ Is financial accounting reporting system integrated with BSC ? ☐Yes No

4. Cascading BSC

4/1 Which approach was followed in implementing the BSC? (Please tick)

☐ Top-down approach ☐ Bottom-up approach

5. Personal BSC

5/1 Employees have accepted the BSC system, and they fit with the organisation's objectives — 1 2 3 4 5

6. Rolling out implementation plan

6/1 The organisation developed a clear plan to roll out BSC between different levels and departments. — 1 2 3 4 5

6/2	How long does it take to roll out a change to the organisation's strategy? (Please tick only one) ☐ This is not an objective of our BSC ☐ Less than 1 month ☐ Between 1 month and 3 months ☐ Between 3 months and 6 months ☐ Between 6 months and 1 year ☐ Between one and two years ☐ Have not changed strategy yet

6. Benefits of BSC

Please circle 1= Strongly agree; 2 = Agree; 3 = Neutral; 4 = Disagree; 5 = Strongly disagree

1. Measurement assessment		
1/1	As a result of the BSC the organisation has realized the benefits of the company's strategies and operational goals.	1 2 3 4 5
1/2	The results of the BSC help your organisation to assess its performance.	1 2 3 4 5
1/3	Implementation of the BSC enables the organisation to review its measures frequently and identify the right combination of measures as part of its accountability reports.	1 2 3 4 5
2. Regular reporting		
2/1	The organisation has reporting systems besides the BSC. ☐Yes No	
2/2	Information of the BSC reaches the right people, in the right format, at the right time	1 2 3 4 5
2/3	The BSC improves feedback to responsible managers so that adjustments to the strategic plan can be made during the operating period.	1 2 3 4 5
3. Problem solving		
3/1	Employees are empowered to resolve problems and improve processes.	1 2 3 4 5
3/2	The BSC results help the organisation to solve problems.	1 2 3 4 5
4. Action planning		
4/1	After implementing the BSC, did the organisation: • Review the results, take action on the measures and publicise progress? Yes No • Review the whole system so that it stays up to date? Yes No	

7. Sustainability Phase

Please circle 1= Strongly agree; 2 = Agree; 3 = Neutral; 4 = Disagree; 5 = Strongly disagree

1. Automating the BSC		
1/1	The organisation's BSC system is : ☐ Fully automated ☐ Mostly automated ☐ Some parts of the system are automated ☐ The system is not automated	
1/2	Which BSC software is the organisation currently using? (Please tick one) ☐ CorVu ☐ Crystal Decisions ☐ Gentia ☐ Hyperion ☐ Fiber ☐ Inphase ☐ People Soft ☐ SAP ☐ SAS ☐ Oracle ☐ Penorama Business Review ☐ Other.....	
1/4	How long has this software been used? ☐ Less than 1 year ☐ 1-2 years ☐ 3-4 years ☐ 4-5 years ☐	
1/5	Which statement best describes the level at which the software is most used? (tick only one) ☐ Top management only ☐ Operational management only ☐ Primarily operating management but also top management ☐ Primarily top management but also operating management ☐ All levels of management ☐ Other, please describe.....	
2. Regular communication		
2/1	The employees receive strategic information on a regular basis.	1 2 3 4 5
3. Updating measures		

3/1	The measures are revisited and redefined on a regular basis	1 2 3 4 5
3/2	If so, how often? (please tick) ☐ Weekly ☐ Fortnightly ☐ Monthly ☐ Quarterly ☐ Yearly	
	Reward and Recognition	
4/1	The focus is on individuals' contributions in relation to specific tasks in the organisation.	1 2 3 4 5
4/2	Linkages to reward systems are required for BSC to create cultural change in improved economic performance.	1 2 3 4 5
4/3	The linking of compensation and measuring employee awareness to scorecard results is significant in sustaining the BSC system.	1 2 3 4 5
4/4	The organisation's incentive systems are aligned with BSC measures.	1 2 3 4 5
	Corporate alignment	
5/1	The measures used in the scorecard system motivate employees to work in congruence with the organisation's objectives.	1 2 3 4 5
	Self-assessment through Excellence Models	
6/1	The organisation achieves operational excellence by improving:	
	a) Supply chain management	1 2 3 4 5
	b) Internal processes	1 2 3 4 5
	c) Asset utilisation	1 2 3 4 5
	d) Resource capacity management	1 2 3 4 5
	e) Other processes.....	1 2 3 4 5

8. Learning and Innovation

Please circle 1= Strongly agree; 2 = Agree; 3 = Neutral; 4 = Disagree; 5 = Strongly disagree

1/1	A strategic feedback system is in place	1 2 3 4 5
1/2	The performance appraisal system encourages learning and innovation	1 2 3 4 5
1/3	The learning process at operating level affects performance measurement	1 2 3 4 5
1/4	There is a learning environment which encourages people to innovate and share best practice and knowledge.	1 2 3 4 5
1/5	The employees are encouraged to voice their opinions and criticisms, and give feedback on organisational functioning and performance.	1 2 3 4 5
1/6	The organisation has a culture of teamwork and problem solving	1 2 3 4 5
1/7	The organisation encourages suggestions to enhance creativity and innovation	1 2 3 4 5

9. BSC Implementation obstacles

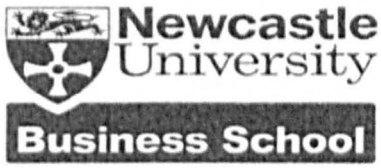
1) Which of the following barriers were encountered while implementing the BSC? (please tick as appropriate)

☐	The vision – Employees do not understand company vision
☐	The management – The organisation is solely focused on short-term performance
☐	The complex nature of the BSC and the requirements for its operationalisation
☐	The people – The developing and maintaining of BSC can create a higher workload, with competing reporting systems, etc
☐	Too many measures
☐	Too few measures
☐	Resistance to change from old techniques
☐	Other, please specify: .....

Please write an account of your own experiences and any comments you may have.

Thank you for your co-operation

Appendix C: The follow-up letter



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9th June 2008

Dear

On 23rd of February, we sent the link to the web-based questionnaire by e-mail to **Mr. Asad Alawi** who is Assistant to the Controller in Saudi Aramco. The link was sent because we were requesting your participation in a research project which is attempting to assess the use of a Balanced Scorecard concept as a tool for improving, measuring and finding the factors which drive company performance in Saudi Aramco. We realise that your busy schedule may have delayed your response to completing the questionnaire but we would very much like your participation and hence we are writing to you requesting your response. For Mr. Al-sumairi to successfully complete his Ph.D.dissertation it is vital that he has a satisfactory response rate to the questionnaire so your contribution would be very much appreciated. As mentioned in our earlier letter, we assure you that any information provided by you will be treated with the **utmost confidence**. Not only can **confidentiality** be assured but moreover only aggregate results will be reported. Further, you should know that the study's findings will not be available to other researchers, unlike other research, **for at least 3 years**.

Please find below the link to the web-based questionnaire. I will be most grateful if you could distribute this questionnaire in the **corporate planning** department and the **financial** department.

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The University of Newcastle upon Tyne trading as Newcastle University

Your contribution to the success of this study and the completion of the PhD dissertation is greatly appreciated.

I look forward to receiving your responses to the questionnaire.

www.student.ncl.ac.uk/mohammed.al-sumairi/q1.php

Yours truly,

Prof. A.R. Appleyard
ICAEW Northern Society Professor of Accounting and Finance

Mr. Mohammed Al-sumairi
Mohammed.al-sumairi@ncl.ac.uk

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Appendix D: Participants in the Decision Making Process in the Kingdom of Saudi Arabia

Period	The king	Major Decisions	MINIPT	Minister
1953-1963	King Saud Oct., 1953	COM: 8 Ministers (1953)	Directorate of oil and Mining Affaires (1953)	Al-Tarki
			Directorate General of Petroleum and Minerals (1958)	Al-Tarki
			Ministry of Petroleum and Minerals (Dec,1960)	Al-Tarki Dec, 1960
		COM: 14 Ministers Mar, 1962		Yamani Mar., 1962
1964-1975	King Faisal Nov., 1964			
		Establishment of SPR[31] 1973		
1975-1982	King Khaled Mar., 1975	COM: 23 Ministers Oct., 1975		
1982- 2005	King Fahad Jun, 1982			
				Nazer Dec. 1986
		Saudi Aramco 1988		
		Establishment of Consultative Council 1992		
		COM: 29 Ministers Jul., 1995		Naimi Jul., 1995
2005- Present	King Abdullah Aug., 2005			
		For the first time, opening of joint ventures with Multi-national companies for Gas operation.		

Adapted from Al-Hamody, 1996.

[31] SPR Strategic Petroleum Reserve.

Appendix E: Timeline of Important Events in Aramco's History (1933-2007)

1933

Saudi Arabia grants oil concession to California Arabian Standard Oil Company (Casoc), affiliate of Standard Oil of California (Socal, today's Chevron). Oil prospecting begins on Kingdom's east coast.

1936

Texas Company (known as Texaco, now part of Chevron) acquires 50 percent interest in Socal's concession.

1938

Kingdom's first commercial oil field discovered at Dhahran. Crude is exported by barge to Bahrain.

1939

First tanker load of petroleum is exported.

1944

Casoc changes its name to Arabian American Oil Company (Aramco).

1945

Ras Tanura Refinery begins operations.

1948

Standard Oil of New Jersey and Socony-Vacuum Oil (both now Exxon Mobil) join Socal and Texaco as owners of Aramco.

1950

1,700 km Trans-Arabian Pipe Line (Tapline) is completed, linking Eastern Province oil fields to Lebanon and the Mediterranean.

1951

Safaniya field, the world's largest offshore oil field, is discovered.

1956

Aramco confirms scale of Ghawar and Safaniya, world's largest oil field and largest offshore field respectively.

1961

Liquefied petroleum gas (LPG) - propane and butane - is first processed at Ras Tanura and shipped to customers.

1966

Tankers begin calling at Sea Island, new offshore crude oil loading platform off Ras Tanura.

1973

Saudi Arabia's Government acquires a 25 percent participation interest in Aramco.

1975

Master Gas System project is launched.

1980

Saudi Government acquires 100 percent participation interest in Aramco, purchasing almost all of the company's assets.

1981

East-West Pipelines, built for Aramco's natural gas liquids (NGL) and crude oil, link the Eastern Province with Yanbu' on Red Sea.

1982

Exploration and Petroleum Engineering Center (EXPEC) opens in Dhahran.

1984

Company acquires its first four supertankers.

1987

East-West Crude Oil Pipeline expansion is completed, boosting capacity to 3.2 million barrels per day (bpd).

1988

Saudi Arabian Oil Company, or Saudi Aramco, is established.

1989

High-quality oil and gas are discovered south of Riyadh, the first find outside the company's original operating area. Saudi Aramco and Texaco launch the Star Enterprise refining and marketing joint venture.

1991

Company plays major role combating the Gulf oil spill.

1992

East-West Crude Oil Pipeline capacity boosted to 5 million bpd. Saudi Aramco affiliate purchases 35 percent interest in Sang Yong Oil Refining Company (now S-Oil Corporation) of the Republic of Korea.

1993

Saudi Aramco takes charge of Kingdom's domestic refining, marketing, distribution and joint-venture refining interests.

1994

Maximum sustained crude-oil production capacity is returned to 10 million bpd. Company acquires a 40 percent equity interest in Petron, largest refiner in the Philippines.

1995

Company completes programme to build 15 very large crude carriers. Saudi Aramco President and CEO Ali I. Al-Naimi is named Kingdom's Minister of Petroleum and Mineral Resources.

1996

Saudi Aramco acquires 50 percent of Motor Oil (Hellas) Corinth Refineries and Avinoil. Company also assumes controlling interest in two Jeddah-based lubricants companies, now known as Saudi Aramco Lubricating Oil Refining Company (Luberef) and Saudi Arabian Lubricating Oil Company (Petrolube).

1998

Saudi Aramco, Texaco and Shell establish Motiva Enterprises LLC, a major refining and marketing joint venture in the southern and eastern United States.

1999

HRH Crown Prince 'Abd Allah inaugurates the Shaybah field in the Rub' al-Khali desert, one of the largest projects of its kind in the world goes on stream.

The Dhahran-Riyadh-Qasim multi-product pipeline and the Ras Tanura Upgrade project are completed.

The second Saudi Aramco-Mobil lubricating oil refinery (Luberef II) in Yanbu' commences operations.

2000

Petroleum Intelligence Weekly ranks the company No.1 in the world for the 11th consecutive year, based on the Kingdom's crude oil reserves and production.

Aramco Gulf Operations Limited is established to assume management of the government's petroleum interest in the Offshore Neutral Zone between Saudi Arabia and Kuwait.

New facilities are under construction in the Haradh and Hawiyah gas plant projects to process gas for delivery to the Master Gas System and on to domestic markets.

2001

Hawiyah Gas Plant, capable of processing up to 1.6 billion standard cubic feet per day of non-associated gas, comes on stream.

2003

Haradh Gas Plant completed two and a half months ahead of schedule.

2004

HRH Crown Prince 'Abd Allah ibn 'Abd Al-'Aziz Al Saud, First Deputy Prime Minister and Head of the National Guard, inaugurates the 800,000 barrel-per-day Qatif-Abu Sa'fah Producing Plants mega project. In addition to the crude, the plants provide 370 million standard cubic feet of associated gas daily.

2005

Saudi Aramco and Sumitomo Chemical Co., Ltd. sign a joint venture agreement for the development of a large, integrated refining and petrochemical complex in the Red Sea town of Rabigh, on Saudi Arabia's west coast.

2006

Saudi Aramco and Sumitomo chemical break ground on PETRORabigh, an integrated refining/petrochemical project. Hardh III is completed, yielding 300,000 bpd of oil. Accords are signed for two export refineries Jubail (with Total company) and in Yanbu' (with Conoco-Phillips).

2007

Saudi Aramco begins a programme to build a $10 billion world-class graduate research university, the King Abdullah University of Science and Technology (KAUST).

Appendix F: Aramco Corporate Management Team

Name	*Position*
Abdallah S. Jum'ah	President and Chief Executive Officer –Appointed November 1995. Member of the Saudi Aramco Board of Directors. Joined the company in 1968. Mr. Jum'ah is a graduate of the American University of Beirut. He completed the Program for Management Development at Harvard University in 1976.
Salim S. Al-Aydh	Senior Vice President, Engineering and Operations Services – Appointed May 2002. First appointed senior vice president in November 2001. Joined the company in 1970. Mr. Al-Aydh holds a bachelor's degree in mechanical engineering from University of Tulsa. He completed the Program for Management Development at Harvard University in 1990.
Khalid A. Al-Falih	Senior Vice President, Industrial Relations – Appointed October 2005. First appointed senior vice president in August 2004. Member of the Saudi Aramco Board of Directors. Joined the company in 1979. Mr. Al-Falih holds a bachelor's degree in mechanical engineering from Texas A&M University and an MBA from King Fahd University of Petroleum and Minerals.
Abdulaziz F. Al-Khayyal	Senior Vice President, Refining, Marketing & International – Appointed February 2002. Member of the Saudi Aramco Board of Directors. First appointed senior vice president in September 2000. Joined the company in 1981. Mr. Al-Khayyal holds a bachelor's degree in mechanical engineering and a master's degree in business administration from the University of California. He completed the Advanced Management Program at the University of Pennsylvania in 1995.
Stanley E. McGinley	General Counsel and Secretary – Appointed July 1986. Joined the company in 1971. Mr. McGinley holds a JD in Law from the University of Southern California and a bachelor's degree in economics from the University of California, Santa Barbara. He completed the Program for Senior Executives at MIT in 1979.
Abdullatif A. Al-Othman	Senior Vice President, Finance – Appointed May 2005. Joined the company in 1981. Mr. Al-Othman holds a bachelor's degree in civil engineering from King Fahd University of Petroleum and Minerals (KFUPM). He earned a master's degree in business administration from the Massachusetts Institute of Technology (MIT) in 1998.
M. Yusof Rafie	Senior Vice President, Gas Operations – Appointed October 2005. First appointed senior vice president in

Name	*Position*
	June 2000. Joined the company in 1970. Mr. Rafie holds a bachelor's degree in petroleum engineering from the University of Cairo. He completed the Management Program for Executives at Cornell University in 1983.
Abd Allah S. Al-Saif	Senior Vice President, Exploration and Producing – Appointed August 1995. Member of the Saudi Aramco Board of Directors. First appointed senior vice president in December 1992. Joined the company in 1960. Mr. Al-Saif holds a bachelor's degree in petroleum engineering from the University of Oklahoma. He completed the Management Program for Executives at the University of Pittsburgh in 1979.

Source: Aramco Report, 2007.

Appendix G: Aramco Strategic Objectives

Objectives			
Perspectives	**Objectives**	**Objective Definition**	**Strategic Imperative**
Financial	Reduce costs and enhance revenue	Aramco will optimize costs by focusing on Abqaiq Plants Power & Pipelines which is an Admin Area under E&P Oil (APP & P) Net direct expenditure (NED). It will improve performance through its impact on customers by reducing operational upsets, poor quality and purchased power. It will also focus on controllable costs over and above NDE, including energy, fuel gas and services.	Transform performance
	Perform only highest value core services	Aramco will understand what are and what are not core activities, then, it will optimise by outsourcing or divesting those services that are still necessary. (There will be a corporate imperative procedure for this that Aramco will follow). Aramco will discontinue non-value added activities which do not contribute to corporate profits.	Transform performance
	Support local economy	Aramco will support local Saudi contractors and suppliers by preferentially buying products and services from them. Aramco will partner Saudi companies to commercialize new products and services, such as power wheeling, professional and technical services. Aramco will evaluate and capitalize on potential plant streams and other resources that could be leveraged to add value to the Saudi economy	Optimize portfolio
Customer	Achieve optimum quality & reliability	Customers expect APP & P to serve their needs in processing crude and in transportation of hydrocarbons and power. Aramco must focus on the optimum (cost vs. customer/need) of product quality delivered according to schedule and available power systems. Quality means consistently meeting customer expectations (or specifications). "Higher Quality" is not exceeding specifications. Achieving quality is reducing process variation around the expected/ committed (product or service) specifications. Aramco will work with its suppliers to ensure that it receives supplies within spec.	Transform performance
	Coordinate IOC activities	Pipelines and Power need a strategy for interconnection with IOCs and other market entrants' facilities, both physically and commercially. Tariffs will be developed in conjunction with the KSA government. Pipelines and other facilities will be licensed by the KSA government. Business process will be changed and developed for operations under this new environment. This develops the local economy by enabling IOC entry in order to provide natural gas and other products to the KSA economy.	Optimize portfolio
	Achieve highest standard of safety and environment	Safety is a leading indicator of workforce performance. Lack of safety focus can have a major impact on operating costs and customer satisfaction. Aramco will create an environment where employees can communicate close calls and everyone can learn from those calls and improve practices. Its work practices and procedures will be up-to-date, workable, and understood and followed by all employees. It will lower emissions (into the air, and water and onto the ground) and reduce consumption of natural resources (water and hydrocarbons). It anticipates more stringent future environmental restrictions (such as on flaring). Aramco will comply with Corporate Environmental objectives.	

Internal Business	Deploy technology & encourage innovation	Aramco will deploy technology that will lead to a measurable and sustainable impact on unit-cost and those with a direct link to its specific strategic objectives. For example, Aramco will employ real-time data from remote monitoring and automation. PDD will be the power systems experts driving the power system technology deployment company-wide. Aramco will strive to diversify technology sources to reduce dependency. In line with the Corporate Innovation programme, Aramco will encourage employees to reduce cost and enhance customer satisfaction and revenue. It will modify its policies and procedures to enable / expedite trials and failures as well as successes. Small ideas add up to large results. Its goal is that all employees understand APP&P's objectives and are fully engaged in achieving these objectives.	Transform performance
	Enhance efficiency of core processes	It will enhance the efficiency of operations and maintenance by optimizing all components of NDE, including manpower, materials and invoices, by profitably increasing product recovery and through energy efficiency. Aramco will do what is necessary to achieve its operational objectives, but it will eliminate unnecessary steps and activities that do not contribute to corporate profits. Aramco will maximize utilization of resources, including avoiding redundant equipment. Aramco will operate as a single admin area, eliminating redundant services and sharing best practices.	
	Utilize risk management	Aramco will evaluate the potential future costs of actions versus the benefits of either acting or deferring the actions. Aramco will utilize risk assessment models where applicable. Reliability studies are the main focus. Its preventative maintenance programme will change to reliability-based maintenance. Safety will not be compromised.	
	Support Saudized contractors	Aramco will support Saudi contractors and suppliers by preferentially buying products and services from them. Aramco will its their employees on specific, specialized skills to ensure they meet Aramco standard / requirements. Aramco will comply with the Corporate Saudization hurdles / goals.	Optimize portfolio
	Commercialize new revenue streams and pursue partnering opportunities	Aramco will identify products and services that APP&P can profitably provide to generate new direct external revenues. (These include spare capacity, hot tap / stopple, excess power and consulting on best-in-class maintenance practices, energy management and preventative maintenance procedures.) Aramco will market and sell to customers. It will focus on products / services that it presently uses (which may be in excess of its needs). Aramco will pursue a broad spectrum of partners (contractors and service providers, IOCs). Aramco will leverage its facilities, experience and operational needs / expenditures. It will develop alliances around technologies with the goal of generating new	

		revenue and reducing operating costs. (Examples include Rosen on instrument scraping, Statoil on maintenance best-practices).	
Learning and Growth	Deploy knowledge management	Aramco will encourage sharing best practices and lessons learned. Aramco will use eWay and exchange meetings and forums. Aramco will make this knowledge and participation available to everyone. Management will use websites to make critical and strategic information available to all employees.	Prepare workforce for the future
	Enhance workforce competency & create a learning environment	Aramco will support employees to increase their competency levels to a consistently high-level and according to their job description / competency matrix in PMP. Aramco will support self-development, including enabling eLearning. It will create learning centres for critical skills. It will cross-train employees in multiple skill areas to optimize the workforce level. Aramco will ensure job competency through recertification.	
	Enhance empowerment & accountability	Aramco will develop programmes to measure and improve employee motivation, such as acting on the results of employee satisfaction surveys, improving communications and uniformly applying HR policies. Management (division-head) rotation will be optimized to ensure that management has a solid experience base with employees to recognize their performance with appropriate rewards and consequences. Employees' goals and objectives will be clearly stated in alignment with department and admin area strategic objectives and measured / monitored in PMP.	
	Envision future job requirements	Aramco will make sure that its workforce is ready to handle future work challenges and job requirements. It will envision the changes that might occur and develop the workforce accordingly. Human resource selection will be based strictly on qualification and competitiveness, as the main factors that constitute job security. It will also make sure that APP&P does not run out of specialized personnel to cover future job positions.	

Appendix H: Aramco Balanced Scorecard

Terminology	Definition	What this means	What this means for Aramco
Aramco Strategy Map	This is a portrayal of the overall strategy, which consists of the focus strategies and sub-strategies based on the cause and effect chains of the objectives	This is a way of presenting an overview of the strategy that the company uses to reach their goal, their vision. It shows how certain strategies are related to other strategies and how strategies relate to objectives and perspectives	It shows how Aramco plans to accomplish its goals. Each individual working for Aramco should be able to reach these goals.
Balanced Scorecard	The BSC is a management system that enables the organization to clarify its vision and strategy and translate them into action. BSC is a tool for measuring and managing business performance giving a balanced view of financial and operational perspectives to accelerate the management process.	It is a system for management to ensure that all employees know which direction the company is going in. At the same time management measures progress, gathering information to see if the company is indeed going in that direction.	Measuring what we do means we can change our way of working, so we become more efficient. Instead of reporting the number of activities that we have performed, we will need to report the results of what we have done. This will be done using the Key Performance Indicators (KPIs)
Corporate / Strategic Direction	This is corporate level guidance on the direction to be taken by the company to achieve its vision.	This is the board of directors' long term view of what the company must achieve and it may be considered to be a statement of the company's vision	Aramco will align with and contribute to Saudi Aramco's Strategic Direction: "Saudi Aramco will strive to significantly increase its contribution to the Kingdom's Revenues and will consistently promote the development of the local economy". So there are two main objectives: to increase national income and to promote the local economy.

Corporate Values	Set of behaviours and guiding principles by which we agree to treat each other to conduct business	Ground rules for behaviour	Aramco has following corporate values: (1) Excellence: We pursue excellence in everything we do. (2) Human Resources: We encourage continuous learning and strive to develop our people to their highest potential. (3) Fairness & Integrity: We strive for fairness and adhere to the highest ethical standards. (4) Teamwork: We support each other and work together to achieve our business objectives. (5) Safety: We strive to maintain the highest levels of safety, security, health and environmental standards. (6) Responsiveness: We are responsive to the expectations of the government and our customers. (7) Stewardship: We are proud of our company and are committed to preserving its assets and resources. (8)Trust: We place authority where responsibility lies. (9)Accountability: We are accountable for all our actions. (10) Citizenship: We support our communities and serve as a role model for others.
Initiatives	The specific programmes, activities, projects or actions an organization will undertake in an effort to meet performance targets	In order to meet the targets set in the KPIs, it is not sufficient to continue 'business as usual'. Special efforts need to be made in order to meet the targets. These special efforts are called initiatives	We cannot just proceed as we are doing now. We need to think of changing things, developing new activities in order to meet / exceed the targets set.
Key Performance Indicators / Measures	How success in achieving the strategy is measured and tracked. Controllable by the organization responsible for its accomplishment.	To manage we must measure: This aspect of our work gives a good indication of what we have been able to accomplish	Series of KPIs are created for Aramco on a corporate level, a divisional level and possibly an individual level. Each KPI will have its own target. On a regular basis the status of the KPI (actual accomplishment versus target) will be reported to management. Based on the trends observed we may change the things we do so that we can improve our performance

Line of Sight	Through his/her line of sight, each employee should see from the strategy map how he/she contributes to the success of the company.	Ability for individual employees to see how their individual work and ideas can affect strategy at the highest levels.	When an Aramco employee looks at the Aramco strategy map, he/she can see how his/her own actions affect the strategic objectives. Through the cause and effect relationship of the 14 objectives, the employee can see how he/she contributes to reaching Aramco's vision.
Mission	This defines the core purpose of the organization - why it exists	This is why the company exists, its purpose	Aramco provides services to the enterprise, its suppliers and Saudi Arabian companies in its areas of operation
Objective	A concise statement defining a specific component of what the strategy must achieve / what is critical to its success. Measures and initiatives are assigned to objectives.	The company's goal (vision) cannot be reached in just one step. Therefore a plan has been developed (strategy) to reach the goal in several steps. Each step has its own goal or objective.	These are the "destinations" on the roadmap which lead us to our vision. Aramco objectives are the 14 bubbles on the Aramco Strategy Map
Perspectives	These refer to categories of performance measures, reflecting different views of the strategy	Strategy can be seen from several points of view or perspectives.	Aramco looks at the strategy from four perspectives:- Financial (How should we appear to the board/ shareholders?) Customer (How should we appear to our customers?) Internal process (What should we excel at to succeed?) Learning and Growth (This is our "people" perspective. What must we do to change and improve?)
Strategic Imperatives	The strategic imperatives define how the organization will move forward	"Imperative" means "Must Do". Strategic Imperatives could be called "SUPER Strategies", set by top management. All parts of the company have to comply with them.	Aramco Corporate strategic imperatives are: (1) Transform Corporate Performance (a) Establish a business unit structure, (b) Achieve "Best-in-Class" Performance. (2) Optimize corporate portfolio (a) Optimize the business portfolio (b) Optimize the services portfolio. (3) Increase revenue (4) Protect oil market (5) Promote KSA economy (6) Prepare workforce for the future
Strategy	Action plan for an organization to achieve its vision and mission; includes a set of objectives, methods of involving people, and processes. Strategy not only specifies what an organization will do, but also what it will not do. Has the goals of providing the required return for shareholders by winning customer's business and creating a sustainable competitive advantage	The strategy defines HOW the vision will be accomplished	AOC's Strategy is embedded in the strategic imperatives which have been given to us by Saudi Aramco Management. Our strategy identifies how we will contribute to Saudi Aramco's strategic imperatives.
Vision	A concise written statement defining the mid- to long-term strategy of the organization. The vision is the summary statement of how the organization wants to be perceived.	This is what a company wants to become in the future. It is how it sees its future in 5 to 15 years. It should be challenging and therefore should make people feel a little "uncomfortable".	Aramco will provide optimal solutions to Saudi Aramco, pursue for-profit opportunities and facilitate commercialization of innovations by proactively and creatively managing our resources to maximize financial contributions to the enterprise while promoting the KSA economy

Sources: Saudi Aramco Report, 2006.